REPORT RESUMES

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AN ANALYSIS OF CERTAIN EDUCATIONAL AND SOCIO-ECONOMIC FACTORS AS THEY RELATE TO THE NATURE AND NUMBER OF 4-H PROJECTS SELECTED AND THE PROJECT PROGRESSION SHOWN BY 4-H CLUB MEMBERS AT GRADES ONE, SIX, AND NINE IN TEN WISCONSIN COMMUNITIES.

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THIS STUDY INCLUDED 75 BOYS AND 67 GIRLS WHO HAD BEEN RESIDENTS SINCE GRADE 1 IN 10 WISCONSIN COMMUNITIES AND WHO HAD BEEN 4-H CLUB MEMBERS AT SOME TIME DURING THIS PERIOD. THREE HYPOTHESES WERE TESTED WITH 19 VARIABLES GROUPED UNDER 3 HEADINGS--(1) EDUCATIONAL, (2) SOCIOECONOMIC, AND (3) TEACHER RATING FACTORS. THE FINDINGS REVEAL THAT THERE ARE SIGNIFICANT DIFFERENCES AT THE .05 PERCENT LEVEL AMONG SOME OF THE MEAN SCORES IN ALL THREE CATEGORIES OF KINDS, NUMBERS, AND LEVELS OF PROGRESSION OF 4-H PROJECTS. THERE WAS A TENDENCY FOR BOYS TAKING THE MOST PROJECTS AND ATTAINING THE HIGHEST LEVEL OF PROGRESSION TO BE LOWER ACHIEVERS IN SCHOOL. THE DIFFERENCES AMONG ACHIEVEMENT SCORES FOR GIRLS WERE SMALLER THAN THE DIFFERENCES FOR THESE SCORES AMONG BOYS. BOYS TAKING SHEEP AND GARDEN PROJECTS HAD LOWER SOCIOECONOMIC SCORES THAN BOYS IN DAIRY, ELECTRICAL, AND WOODWORKING PROJECTS. THESE FINDINGS HAVE INDICATED THAT THE TYPE OF PROJECT ACTIVITY AVAILABLE IN HOME ECONOMICS MAY ATTRACT GIRLS WHOSE ACADEMIC CHARACTERISTICS ARE SUPERIOR TO THE BOYS. ON THE BASIS OF THE FINDINGS, THE INVESTIGATORS QUESTION THE WISDOM OF ENCOURAGING AN INDETERMINATELY LENGTHY MEMBERSHIP IN 4-H CLUB WORK BY MEANS OF WHICH SOME 4-H AWARD WINNERS MAY OUTLAST RATHER THAN OUTWIN THEIR COMPETITORS. (WB)

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ABSTRACT

AN ANALYSIS OF CERTAIN EDUCATIONAL AND SOCIO-ECONOMIC FACTORS AS THEY RELATE TO THE NATURE AND NUMBER OF 4-H PROJECTS SELECTED AND THE PROJECT PROGRESSION SHOWN BY 4-H CLUB MEMBERS AT GRADES ONE, SIX, AND NINE IN TEN WISCONSIN COMMUNITIES

by

Echo L. R. Lidster

Under the supervision of Professor Burton W. Kreitlow,
The University of Wisconsin, Madison, Wisconsin

The Purpose and Procedure

The purpose of this study is to explore the relationships existing between certain educational and socio-economic factors and the kinds, numbers, and degrees of progression of the 4-H Club projects taken by boys and girls enrolled in 4-H Clubs in ten Wisconsin communities. Information on these items was obtained by means of twelve data gathering devices which are part of the battery of nineteen instruments used in the longitudinal study on school district reorganization from which this problem was selected.

Design and Treatment of Data

The study included 75 boys and 67 girls who had been residents since Grade I in ten Wisconsin communities, and who had been 4-H Club members at some time during this period. Three null hypotheses were tested in order to achieve the purposes of this study:

Part of the research reported herein was performed pursuant to a contract with the United States Office of Education, Department of Health, Education, and Welfare.

Hypothesis$_1$--There is no difference in the educational and socio-economic background of youngsters selecting different kinds of 4-H projects.

Hypothesis$_2$--There is no difference in the educational and socio-economic background of youngsters selecting different numbers of 4-H projects.

Hypothesis$_3$--There is no difference in the educational and socio-economic background of youngsters attaining different levels of 4-H project progression.

These three hypotheses were tested with nineteen variables grouped under three headings: educational, socio-economic and teacher rating factors. The differences among the mean scores of the several categories within each group were tested for their significance by the one way classification of the analysis of variance using Scheffé's error term for unequal numbers in each cell. The mean scores of those variables which yielded significant F values at the .05 per cent level were further tested by applying Duncan's Multiple Range Test for unequal replications in each cell.

Findings

The findings reveal that there are significant differences at the .05 per cent level among some of the mean scores in all three categories of kinds, numbers, and levels of progression of 4-H projects.

There was a tendency for the boys taking the most projects and attaining the highest level of progression to be lower achievers in school. Teacher's ratings on achievement and willingness to work supported this finding. These trends were not evident among the girls.

The differences among achievement scores for girls were smaller than the differences for these scores among the boys. The girls in livestock projects had lower achievement scores at Grades One and Six than the girls in clothing and food projects, but at Grade Nine the rank order became clothing, livestock, and food. The mothers of the girls in livestock projects attained a higher grade in school than the mothers or fathers of any other boys and girls. The girls in the livestock project had higher socio-economic scores than the girls in food and clothing projects.

The boys taking sheep and garden projects had lower socio-economic scores than the boys in dairy, electrical, and woodworking projects. Throughout the study there was a tendency for the number of organizations to which parents belong, the number of dairy cows owned by those living on farms, the Sewell Socio-Economic Score, and the teacher's rating on family's financial status to be associated.

Implications

These findings imply that some penetrating research should be directed into the type of project and allied program activity for the club members. There is the indication that the type of project activity available in home economics may attract girls whose academic characteristics are superior to the boys. There is the implicit questioning of the wisdom of encouraging an indeterminately lengthy membership in 4-H Club work by means of which some 4-H award winners may out-last rather than out-win their competitors.

6/3/63 **Approved** Burton W. Kreitlow

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by

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A thesis submitted in partial fulfillment of
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To my mother, Mrs. Helen Freeda Lidster, whose Celtic philosophy finds expression in Browning's phrase:

"I count life but a stuff
To try the soul's strength on, educe the man"

and who, in spite of the dreary deprivations of "the Depression" mustered the 4-H materials to help quicken this process in her children, and whose moral support and encouragement even in the graduate program does not falter, flag, nor fail.

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AUTOBIOGRAPHICAL SKETCH OF AUTHOR

The author was born on October 27, 1916, in Vancouver, British Columbia, Canada. She attended elementary public school in Tenby, and Dauphin, Manitoba, and high school at Langley, British Columbia. During the last two years of high school she was a member of the Langley 4-H Ayrshire Calf Club. She enrolled in the University of British Columbia, September 1935, majoring in Animal Husbandry and graduating with the degree of Bachelor of Science in Agriculture, May 1942.

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CHAPTER I

BACKGROUND AND PURPOSE OF THE STUDY

Introduction

The purpose of this study is to explore the relationship existing between specific educational and socio-economic factors and the 4-H projects taken by a selected sample of 4-H Club members. Within this context attention is focused on the kinds, numbers, and progression of 4-H projects taken by these boys and girls during their tenure of membership in a 4-H Club. Pertinent data are supplied by means of selected standard tests and other instruments especially designed for the larger longitudinal study of which this particular analysis is a part. The data for this dissertation are derived from the information gathered when the study subjects were in school grades one, six, and nine.

Background and Purpose

The operational procedures of farm and home are of such a nature that certain aspects of them can be identified as separate and distinct jobs and each treated as an entity by itself. These jobs lend themselves to the work efforts of one individual and can therefore be described as a project. This project activity has formed a nucleus for 4-H programs and enables the individual to serve a kind of an apprenticeship while working within the matrix of his home or farmstead during the period of childhood and adolescence.

This practical provision for rural youth is accompanied also by a social aspect. Individuals with their projects become formal groups receiving informal instruction by lay and professional people. The disparate tasks of farm and home have thus become a part of the larger life of the community and an integral part of its social structure and processes.

The 4-H movement operates in an aura of approval because of the positive nature of its programs and its oft repeated lofty ideals. The effulgence of goodwill which surrounds 4-H obscures the fact that little is actually known about the characteristics of those who comprise its membership.

The present study is an attempt to pierce this obscurity and to gain information on some specific educational and socio-economic factors for a selected group of 4-H members.

Information gleaned from such intensive and extensive research on the performance and background of selected students will augment the educator's reservoir of knowledge about human behavior. The educator possesses insatiable curiosity about the forces which impinge on and help shape personal character. It is imperative that educationalists increase their understanding of human abilities, needs, and learning so that they can help formulate the objectives and programs of the school and other agencies which effect change compatible with the basic goals of society. In his attempt to orchestrate the disciplines so that individual character may flower more fully the educator is vitally concerned with the developmental tasks which contribute to the maturation of the individual.

The 4-H project provides a unique medium for meeting the needs of those developmental tasks which arise during late childhood and adolescence. Havighurst describes a developmental task as one "which arises at or about a certain period in the life of the individual, successful achievement of which leads to his happiness and to success with later tasks, while failure leads to unhappiness in the individual, disapproval by society, and difficulty with later tasks."[1] It serves the purpose of strengthening an individual and increasing his enabling capacity. The developmental needs which an individual strives to meet at this period of his life include a need for personal independence, a need to assume and discharge responsibility, a need for acceptable social interaction with peer and older groups, and a need for developing intellectual skills and concepts.

The school cannot ignore the extra mural programs, such as 4-H, which help meet these needs, because human abilities and achievements are so interrelated that difficulty in one area of endeavor which is part of the school program may be manifested in another in which the school has little direct responsibility. Academic achievement may reflect the student's quality of performance in some other area of activity.

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[1] Robert Havighurst, Human Development and Education (New York: Longmans Green and Company, 1953), p. 2.

This premise undergirds the present study which will attempt to test three null hypotheses using variables in educational, socio-economic and teacher rating categories pertinent to the parent longitudinal study:

Hypothesis$_1$: There is no difference in the educational and socio-economic backgrounds of youngsters selecting different kinds of 4-H projects.

Hypothesis$_2$: There is no difference in the educational and socio-economic backgrounds of youngsters selecting different numbers of 4-H projects.

Hypothesis$_3$: There is no difference in the educational and socio-economic backgrounds of youngsters attaining different levels of 4-H project progression.

The prime importance of the project in the 4-H program issues from its function as the initial point from which the member can progress to broadening areas of responsibility and learning. It is the nexus from which radiates all manner of club activities, and may be examined from at least two points of view - the material and the social.

The Material Aspect

The project was and is regarded as a means of tangibly demonstrating the value of high quality stock, seed, and homemaking materials and craftsmanship. The project is the mainspring of the program in which the ongoing processes of agriculture and homemaking are centered. It is a highly visible means of illustrating within the confines of the members' home or farmstead the importance of working only with the best possible materials. It is a means, too, of enabling the member to utilize recommended methods of care, construction, cultivation, and other desirable practices associated with farm and home tasks. It provides an object to elicit his interest and evoke his diligence. If this attention is extended to the broader field of major farm and home practices the project actually becomes the vehicle whereby farmers and homemakers raise their level of living. Such an application contributes, through the personal enrichment of the individual and the material development of the farm and home enterprise, to the further development of the nation's resources.

The Social Aspect

The 4-H program is an extension to youth of those services initially offered by the United States Department of Agriculture, and still available, to the rural adult population. In keeping with the objectives of its parent agency the purpose of the 4-H program is to enrich the standard of life in all its phases - whether it be in the economic, educational, familial, political, or religious realm. This objective can be accomplished by recognizing the worth of the individual and by encouraging and making it possible for him to develop his own potential. The stress on personal growth and development is further expressed in the symbolization of the 4-H's by which this youth movement is identified. The "H's" stand for the words Head, Heart, Hand, and Health and are meant to signify the importance of developing the whole person and personality of an individual.

The project gives substance to those developmental tasks which shape, mold, and enlarge the knowledge, skills, and attitudes of club members and which are regarded by educators as being an essential prerequisite for orderly development of the individual. From the project responsibility emanate those intangibles which quicken the latent resources of Head, Heart, Hand, and Health. The project is the object of attention from parent and child alike and serves as the focal point where interest and effort converge to produce visual and measurable evidence of progress and growth in both the individual, the task, and the job to be done.

From this perspective the project is not regarded as being the sole end of 4-H Club work but as a means to an end. The desired end in this instance is an harmoniously adjusted individual who can and will take responsibility for himself and grow into his role in society. The inference here is that the project provides experiential basis which enables the boy or girl to discharge more effectively his responsibilities in a democratic culture.

Significance of the Study

The 4-H movement represents an enormous expenditure of time, effort, and money on the part of the lay and professional workers and supporting organizations interested in the welfare of youth. In order that these efforts may be most fruitfully directed, it behooves those who are entrusted with the development of 4-H Club work to be continually evaluating salient points of the program.

The 4-H movement had its nascence in the spontaneous and sporadic corn, cotton, and bread clubs which sprang up in Louisiana, Iowa, and other adjacent states during the early 1900's. These clubs resulted from the revolution in agricultural methods precipitated by the infestation of farm lands in the southern United States with the cotton boll weevil. These initial attempts fluoresced and came to fruition on a national scale with the passing of the Smith-Lever Act in 1914. By means of this enabling legislation the United States Congress gave formal recognition to this program, through the establishment of the Cooperative Extension Service which was to find its outlet at the state level through the Land Grant Colleges.

The Cooperative Extension Service includes the 4-H Club program as one of the three major phases of its program. The program was initially focused on rural youth. It was designed to capitalize on the unique cultural milieu in which rural youth lived, moved, and had their being. The program required a certain amount of uniformity as well as flexibility. Continuity of purpose was essential. The program had to be invested with some basic, common procedures if it was to be conducted in an orderly fashion on a nationwide basis. This latter need could best be served by building a program around some standard organizational requirements. The project activity was one of those fundamentals devised as requisite and necessary and in which each member was required to engage.

This study will collect and analyze data for the purpose of providing greater understanding of the academic achievement and socio-economic backgrounds of selected 4-H Club members. The findings will be useful in ascertaining relationship between project work and other measurable attributes of the 4-H Club member.

The evidence emerging from this study would enable educators to substitute objective appraisal of the 4-H project activity for subjective judgments now prevailing about it. Such information will instigate further study regarding the project and its place in the 4-H program, by helping to identify additional areas of 4-H activity which would lend themselves to research.

CHAPTER II

REVIEW OF LITERATURE

Introduction

Some of the research pertaining to the aspects of 4-H work involved in this investigation will be recounted in this chapter. The increase in the number of studies related to 4-H Club work would imply that educators are becoming more cognizant of the importance and the role of evaluation in the 4-H program. One example of this trend is the number of studies directed at measuring the degree to which educational performance attains its objectives. Since the 4-H program is an educational arm of the United States Department of Agriculture, its accomplishments must be viewed in relation to attainment of objectives. For the purposes of this study the review of pertinent literature will be presented in two sections. The first section will survey, in chronological order, those pertinent studies conducted under various auspices outside the parent longitudinal study. The second section will be restricted to a review of that research completed within the confines of the longitudinal study of 4-H Club work[1] in Wisconsin.

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[1] Burton W. Kreitlow, Lowell Pierce, and Curtis Middleton, Who Joins 4-H Clubs? (Research Bulletin 215, Madison, University of Wisconsin, October, 1959) p. 3.

Literature Outside the Longitudinal Study

The literature here reviewed is selected to show the findings of previous research related to 4-H projects. Through questionnaires and interviews, Duthie[2] secured information from 235 4-H Club members, 203 rural young people between the ages of 18 and 25 years, and 52 4-H leaders in four counties in Iowa, Minnesota, and Wisconsin. Additional data were available through intelligence tests and attitude tests, as well as family situations and 4-H experience.

Duthie concluded that the selective influence of family factors is such that 4-H Club members are apt to come from homes in which families are more highly integrated through common activities inside and outside the home, from slightly smaller families, and from families whose parents have had more educational advantages than those of non-members. Parents of the 4-H group had a higher average affiliation than non-members and tenancy showed varying relationships to 4-H membership.

Analysis of the personal factors of intelligence indicated that 4-H does not tend to select boys who are mentally superior but rather a representative cross-section of rural boyhood, while girls showed a slight selection of superiority in some areas. The majority of I.Q.'s ranged from 90 to 100.

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[2] Mary Eva Duthie, "4-H Club Work in the Life of Rural Youth" (unpublished Ph.D. dissertation, University of Wisconsin, Madison, 1936) 124 pages.

Brownell[3] conducted a study in 1958 assessing the 4-H Club members' concept of the project. The data were collected on 155 4-H boys and girls between the ages of 14 and 16 years in Monroe County, New York. The prevailing perception among these subjects was that 4-H Club work was an educational program and that the project was the main instrument by which education was achieved. The project was viewed as a means of making learning effective and pleasurable. Yet two-thirds of the members of this study did not have a clear understanding of their responsibility in fulfilling project requirements, nor was record keeping fully comprehended by the members.

A project was defined as a tangible piece of work pertaining to agriculture and home economics and related fields which the member undertakes as an individual responsibility in the 4-H program.

Brownell cites Sevoian[4] who studied the role of the project in 4-H work. This study included 128 girls in the 4-H clothing project in McLean County, Illinois, ages 10 and 11 years. These members mentioned the project as the major inducement in persuading them to join 4-H, and as the most meaningful aspect in relation to learning and fun.

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[3] Joseph Carl Brownell, "Concepts of the Role of the 4-H Project Held by Members of Monroe County, New York" (unpublished Master's Thesis, Cornell University, Ithaca, New York, 1958) 110 pages.

[4] L. H. Sevoian, "Attitudes and Experiences of Ten-and-Eleven-Year-Old Members Enrolled in Clothing Projects in McLean County, Illinois in 1953 With Implications For Program Planning" (unpublished Ph.D. dissertation, Cornell University, Ithaca, New York, 1955).

Horn[5] conducted a study in Chambers County, Alabama. Its objective was to determine the changes wrought in the types of projects selected by white boys over a period 1955-1961 and to analyze some of the factors associated with this selection. Information on 1625 boys was obtained from the county agent's records. Information on mental maturity as determined by California Short Form Test for Mental Maturity, was available for 513 of them from the school system.

Parents of more than half the members came from industry, and these members took more than half the projects.

The California Short Form Test for Mental Maturity disclosed that first quartile members chose livestock and poultry projects in greater numbers. These members also elected a higher mean number of field crops, forestry, wildlife, mechanics, and home improvement than did those in the lower quartiles.

By means of a mail questionnaire Jones[6] studied the factors related to 184 4-H Club members participating in the

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[5] Robert C. Horn, "A Study in Selected Factors Associated With 4-H Project Selection by Boys Enrolled in 4-H Club Work in Chambers County, Alabama" (Master's Thesis, University of Wisconsin, Madison, 1961).

[6] David L. Jones, "Factors Associated With Livestock Exhibitors and Their Exhibits, 1958" (Master's Thesis, Louisiana State University, Baton Rouge, 1959) 108 pages.

1958 Louisiana State University Livestock Show and the animals they exhibited. The average age of the club members was 13.8 years for boys and 13.6 years for girls. Analysis of data given by the club members on their scholastic achievement revealed that 18 per cent of the members rated a school grade of "A", 45 per cent a "B", 35 per cent a "C", 2 per cent a "D". Girls maintained a higher average than boys and those living on farms exceeded the performance of other members in the classroom. Girls evidenced a greater interest and participation in selected 4-H projects and activities other than livestock than did the boys. The composite 4-H activity score of 7.4 (based on participation in 4-H activities) obtained by the girls was higher than the score of 7.0 for the boys.

The 4-H Studies Within the Longitudinal Study

Seven 4-H research reports have already emerged from the data of the longitudinal study. None of these examine directly the 4-H project activity of 4-H members but dwell instead upon comparisons of achievement, social behavior, and situational patterns of members, non-members, and drop-outs among the study subjects. They are summarized here for the purpose of rendering a more complete account of the research findings from companion studies which have preceded this one.

Middleton[7] tested two hypotheses for differences between first and sixth grade members and non-members on family status and background, by analyzing data on twenty-one variables. He concluded that there are socio-economic factors affecting entrance into 4-H membership but no significant differences in other factors.

Pierce[8] subjected two hypotheses to testing by fourteen academic and teacher rating variables in an attempt to determine differences in mental ability and school achievement of 4-H and non-4-H boys and girls at sixth grade. His findings indicate that 4-H is highly selective in terms of the educational level of the young people who become members.

Singh[9] used five dependent and eleven independent variables to explore possible differences in social behavior between sixth grade 4-H and non-4-H boys and girls. He concluded that 4-H members excel in socio-economic status and that non-4-H boys excel in art and reading interests.

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[7] Curtis O. Middleton, "A Comparison of Family Background and Status Between 4-H Members and Non-4-H Members Who Are in First and Sixth Grade in Schools in Ten Wisconsin Communities" (Master's Thesis, University of Wisconsin, Madison, 1958) 103 pages.

[8] Lowell Lavern Pierce, "A Comparison of Mental Ability and School Achievement of 4-H Club Members and Non-4-H Club Members in Ten Wisconsin Communities" (Master's Thesis, University of Wisconsin, Madison, 1958) 67 pages.

[9] Kalpa Nath Singh, "A Study of Personal and Social Behavior of Sixth Grade 4-H and Non-4-H Boys and Girls in Ten Wisconsin Communities" (unpublished Ph.D. dissertation, University of Wisconsin, Madison, 1959) 127 pages.

Non-4-H girls indicate greater interest in other youth activities than do the 4-H girls.

Brack[10] used twenty-five variables from ninth grade data to test two hypotheses pertaining to age at joining and to drop-outs. He found that parent interest in the program was a determining factor in persistence of membership as was age at joining and sibling membership.

Prasad's[11] study on personal and social development at ninth grade using five dependent and ten independent variables indicates that there is no significant difference between 4-H and non-4-H boys and girls in personal and social behavior.

Subaima[12] used twenty-three variables to test variances in school achievement among ninth grade girls who were members and non-members or drop-outs after a short period. She concluded that there are no significant differences in these factors for these study subjects at that point in their development.

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[10] Robert E. Brack, "A Study of the Relationship of Family Background and Status to the Age of Joining and Persistence in 4-H Club Work of Students in the Ninth Grade in Ten Wisconsin Counties" (unpublished Master's Thesis, University of Wisconsin, Madison, 1961) 87 pages.

[11] Chandrika Prasad, "A Comparison of Personal and Social Development and Interest Patterns Between Matched Groups of Ninth Grade 4-H and Non-4-H Members in Ten Wisconsin Rural Communities" (unpublished Ph.D. dissertation, University of Wisconsin, Madison, 1961), 150 pages.

[12] Gathikonda V. Subaima, "A Comparative Study Among 4-H Girls of 4 Years and Over One and Two Year 4-H Drop-Outs and Non-4-H Girls of Ninth Grade in Ten Selected Communities of Wisconsin to Determine Differences in School Achievement and Social Behavior" (unpublished Ph.D. dissertation, University of Wisconsin, Madison, 1961), 124 pages.

Barnes[13] studied fourteen variables relating to personal and social and interest pattern factors for boys and girls who were 4-H members, non-4-H members, and 4-H drop-outs. The small differences which did exist between the study subjects favored the non-4-H members.

The research conducted by Duthie, Brownell, Horn, and Jones has used data pertaining to specific circumstances prevailing at or about the time that the studies were conducted among 4-H Club members. The nature of the research prohibited the use of academic information conducted over a long period of time as is possible in the longitudinal study. Nonetheless, these studies are valuable for bringing into focus several aspects of 4-H work which need further research, and are a valuable adjunct to this study in that they deal with many of the same variables which constitute the basis of this study. For instance, size of families, educational status, and community commitments of parents, I.Q., Mental Age, and project selection of 4-H Club members.

The research within the longitudinal study conducted by Pierce, Middleton, Singh, Prasad, Subaima, Brack, and Barnes uses some of the same data related to the same

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[13] Robert F. Barnes, "An Analysis of Personal-Social Factors and Interest Patterns at Grades VI, IX, and XII Existing Among 4-H Member, 4-H Drop-Out, and Non-4-H Member Boys and Girls in Five Wisconsin Communities" (unpublished Ph.D. dissertation, University of Wisconsin, Madison, 1963).

4-H Club members which figure in the present study. The Brack study is the only one of these which dwelt entirely on 4-H Club members as the others also used data on the non-4-H members participating in the longitudinal study. The treatment of data from all seven of these studies interrelates with the treatment of data in this study. Many of the same variables are used in all seven studies and some are used again in this one to add further dimensions to the knowledge about characteristics of 4-H Club members in the longitudinal study of 4-H members in Wisconsin.

CHAPTER III

DESIGN OF THE STUDY

Introduction

This chapter will detail precisely the nature of this single study and will identify its place within the conceptual framework of the longitudinal study from which it has emerged. The hypotheses to be tested will be stated. The data collecting instruments and the methods for analyzing the data will be described.

The Longitudinal Study

This particular problem is a segment of the Long-Term Study of Educational Effectiveness of Newly Formed Centralized School Districts in Rural Areas which was launched by The University of Wisconsin in 1949 under the direction of Professor Burton W. Kreitlow. This research provided the base for the longitudinal study on 4-H work in Wisconsin. The basic schematic design for this study is found in Figure 1.

The study subjects are students in the schools of ten communities (Figure 2) involving parts of thirteen counties in Wisconsin. In the three-year period between 1949 and 1952, five pairs of rural communities in the State of Wisconsin were singled out by prescribed criteria as the locale for the longitudinal study.[1] All those children who were in first grade at the time these selections were made were considered to be the sample for the study. Original sample groups are represented on the schematic design by A, B, and C.

A replication of the study was planned to start five years after the beginning of the initial study. The replication sample groups are depicted on the schematic design by A', B', and C'. They represent the same communities as the initial study, but being selected at a different point in time (1954-1956) involved a different group of individuals.

In Figure I, A, B, and C designate the community order in which Grades I, VI, IX, XII, and five years post high school are to be studied in the original study. The letters A', B', and C' designate the community order in which Grades I, VI, IX, XII, and five years post high school are to be studied in the replication study. Both orders are identical.

The communities were selected in reorganized and non-reorganized pairs in succeeding years. (Table I)

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[1] Burton W. Kreitlow, Long-Term Study of Educational Effectiveness of Newly Formed Centralized School Districts in Rural Areas, Cooperative Research Project No. 375, University of Wisconsin, Madison, 1962, p. 6.

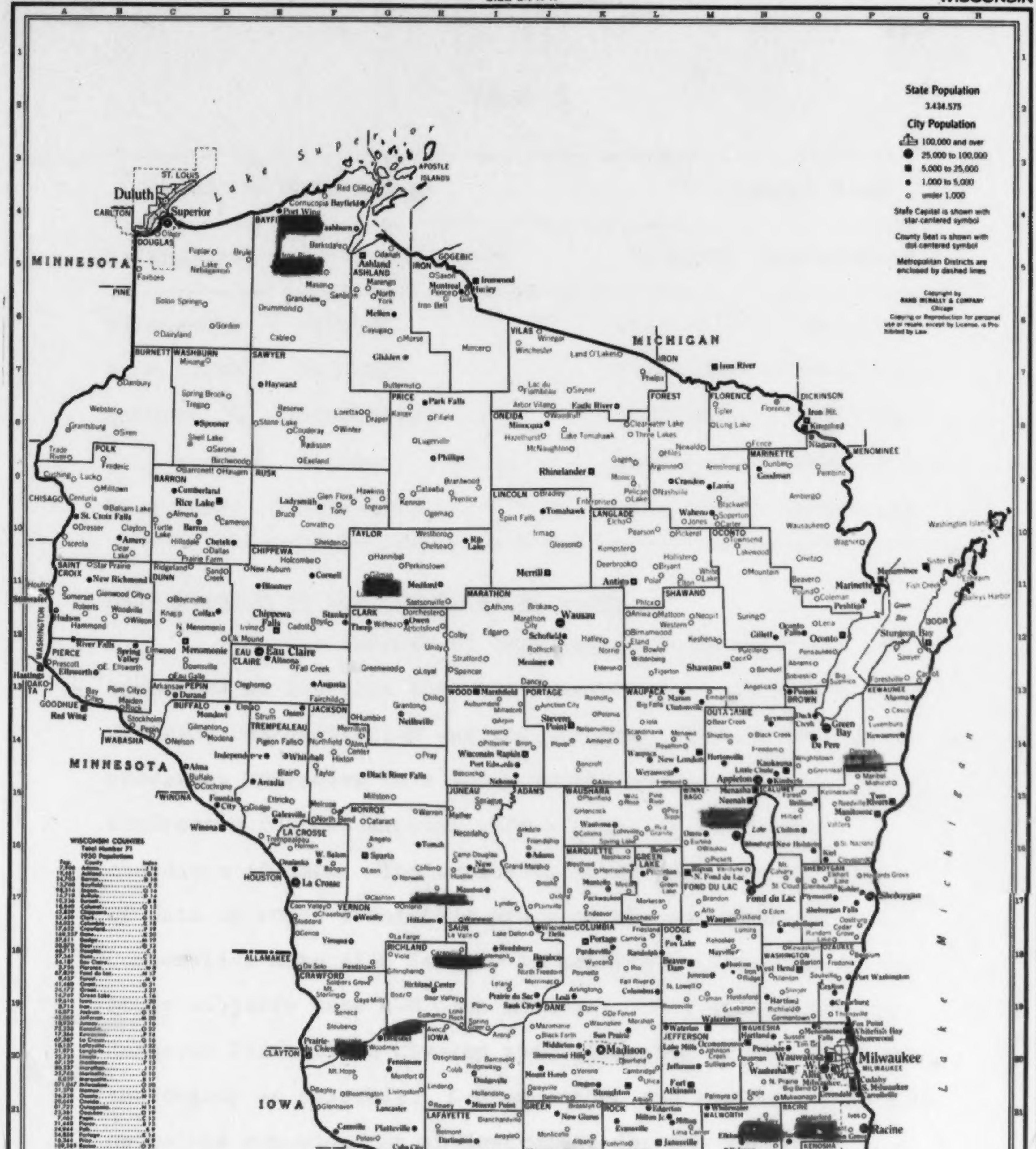
Year	School Grade 1	6	9	12	(5 years Post H. S.)	Community Pairs (R-NR)
1949-50	A					Winneconne-Denmark
1950-51	B					Kendall-Cazenovia; Blue River-Wauzeka
1951-52	C					Port Wing-Gilman; East Troy-Waterford
1952-53						
1953-54						
1954-55	A'	A				Winneconne-Denmark
1955-56	B'	B				Kendall-Cazenovia; Blue River-Wauzeka
1956-57	C'	C				Port Wing-Gilman; East Troy-Waterford
1957-58			A			Winneconne-Denmark
1958-59			B			Kendall-Cazenovia; Blue River-Wauzeka
1959-60		A'	C			Winneconne-Denmark Port Wing-Gilman; East Troy-Waterford
1960-61		B'		A		Kendall-Cazenovia; Blue River-Wauzeka Winneconne-Denmark
1961-62		C'		B		Port Wing-Gilman; East Troy-Waterford Kendall-Cazenovia; Blue River-Wauzeka
1962-63			A'	C		Winneconne-Denmark Port Wing-Gilman; East Troy-Waterford
1963-64			B'			Kendall-Cazenovia; Blue River-Wauzeka
1964-65			C'			Port Wing-Gilman; East Troy-Waterford
1965-66				A'	A	Winneconne-Denmark
1966-67				B'	B	Kendall-Cazenovia; Blue River-Wauzeka
1967-68				C'	C	Port Wing-Gilman; East Troy-Waterford
1968-69						
1969-70						
1970-71					A'	Winneconne-Denmark
1971-72					B'	Kendall-Cazenovia; Blue River-Wauzeka
1972-73					C'	Port Wing-Gilman; East Troy-Waterford

Fig. 1. Research Design — Longitudinal Study of Newly Formed Centralized School Districts in Wisconsin

RAND McNALLY

CITY-COUNTY STATE MAP
SIZE 8½ X 11

WISCONSIN


State Population
3,434,575
City Population
100,000 and over
25,000 to 100,000
5,000 to 25,000
1,000 to 5,000
under 1,000
State Capital is shown with star-centered symbol
County Seat is shown with dot centered symbol
Metropolitan Districts are enclosed by dashed lines
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Lake Superior
Lake Michigan
MINNESOTA
MICHIGAN
IOWA
ILLINOIS
APOSTLE ISLANDS
Duluth
Superior
Ashland
Eau Claire
La Crosse
Wausau
Green Bay
Appleton
Fond du Lac
Sheboygan
Madison
Milwaukee
Racine
Kenosha
Janesville
Beloit
Dubuque
Rockford
Waukegan
Chicago
Cedar Rapids
WISCONSIN COUNTIES
Total Number 71
1950 Population
3,434,575 STATE TOTAL
SCALE IN MILES
0 5 10 20 30 40
[redacted]
[redacted]
[redacted]
[redacted]
[redacted]
[redacted]
[redacted]
[redacted]
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[redacted]

MADE IN U.S.A. Specially engraved and indexed for use with the Rand McNally Commercial Atlas and Marketing Guide.

This Map is also available in size 17 X 22 1159 CL 48

TABLE I

Pairs of Communities		School Year	
Reorganized	Non-Reorganized	Original	Replication
Winneconne	Denmark	1949-1950	1954-1955
Blue River	Wauzeka	1950-1951	1955-1956
Kendall	Cazenovia	1950-1951	1955-1956
Port Wing	Gilman	1951-1952	1956-1957
East Troy	Waterford	1951-1952	1956-1957

Relationship to the Longitudinal Study

The 4-H aspects of this parent study were not contemplated at the time that the research into the school district reorganization was inaugurated. The accumulative processes operative in a longitudinal study, however, soon confronted the researchers with a steadily increasing abundance of data. The availability of such a large amount of data on rural youngsters prompted the personnel of the Cooperative Extension Service to inquire whether any of the study subjects were 4-H Club members. They encouraged the Research Director to develop this dimension of the study as thoroughly as possible. Consequently, the Activity Questionnaire was conceived as an instrument for the specific purpose of identifying those study subjects who were also 4-H Club members and was added to the existing battery of data gathering devices when the first graders were beginning

Grade Six. These new data are being continually integrated with the educational and socio-economic data obtained from the original instruments and thus provide avenues for further research on the behavioral profiles of 4-H members and non-members in the longitudinal study.

The availability of this new information has to date yielded seven 4-H studies emanating from the original study on school district reorganization. This study is the eighth, and like the others utilizes and integrates the educational and socio-economic data with information on 4-H activities.

Basic Assumptions Underlying the Study

The study is presumed to be undergirded by certain basic assumptions which lend credence to the outcomes of the research. Some of these assumptions are that:

1. The ten rural communities providing the locale for the study are representative of the rural communities in Wisconsin.

2. The generalizations about study subjects made on the findings of the research are equally applicable to other rural communities in Wisconsin.

3. The instruments used in the data gathering procedure provide valid information on the nineteen variables studied in this analysis.

4. The teacher possesses sufficient knowledge about each child and his family to be able to rate them accurately on selected factors.

Limitations of the Study

1. In Hypothesis 1 the study is concerned with the kinds of projects on which the 4-H Club member placed his major effort, but does not attempt to identify all the different kinds of 4-H projects undertaken by the club member during tenure of membership.

2. In Hypothesis 2 the study is concerned with the numbers of 4-H projects selected during membership tenure but does not relate this information to the number of years in 4-H Club work.

3. In Hypothesis 3 the study is concerned with the levels of progression of the 4-H Club projects but does not identify those projects which were not completed.

4. The study sample exhibits a bias which includes more of the youngsters from non-migrant families. The club members are those study subjects who have remained in one community throughout their club tenure.

Definitions of Terms Used in the Study

In order to assist the reader to understand the terminology used throughout the narrative of the study, the following meanings are given:

The 4-H Club is the local unit of the rural youth movement organized under the aegis of the Cooperative Extension Service and catering to those young people who are between ten and twenty-one years of age.

The 4-H Club project is a tangible piece of work undertaken by the 4-H Club member during his tenure of 4-H Club membership and related to agricultural, homemaking, and civic practices.

The level of project progression signifies the degree of advancement in project responsibility undertaken by the 4-H Club member during tenure of 4-H Club membership.

Hypotheses

The hypotheses to be tested are:

H_1--There is no difference in the educational and socio-economic background of youngsters selecting different kinds of projects.

H_2--There is no difference in the educational and socio-economic background of youngsters selecting different numbers of projects.

H_3--There is no difference in the educational and socio-economic background of youngsters attaining different levels of project progression.

Data on the following factors will be analyzed to test each hypothesis:

A. Educational Background

1. Chicago Reading Test Grades I and VI
2. Kuhlmann-Anderson Intelligence Test Grades I, VI, and IX
3. Metropolitan Achievement Test Grades I, VI, and IX
4. Number of years of schooling completed by father
5. Number of years of schooling completed by mother

B. Socio-Economic Background at Grades I and VI

6. Number of children in the family
7. Number of dairy cattle owned by those living on farms
8. Number of organizations to which parents belong
9. Occupation of father
10. Sewell Socio-Economic Scale
11. Size of farm
12. Tenancy status of family

C. Teacher-Rating Factors at Grades I and VI

13. Child's achievement in school
14. Child's emotional stability
15. Child's home opportunities
16. Child's willingness to work
17. Family's educational status
18. Family's family background
19. Family's financial status

The list of 4-H projects considered in this study are those developed and offered by the Cooperative Extension Service of the Wisconsin College of Agriculture to 4-H Club members enrolled in 4-H Club work and include the following: automotive, beef, bees, block printing, child care, clothing, crops, dairy, dogs, electricity, food, forestry, fruit, home furnishings, home garden, home grounds improvement, horses, house plants, insects, leather work, mechanics, nature study, photography, poultry, rabbits, sheep, swine, soil conservation, wild life, woodworking. This list comprises a total number of thirty projects. Junior Leadership is considered by the Wisconsin State 4-H Office as a project. For the purposes of recording these data and in keeping with the definition of the term 4-H project as used in this study Junior Leadership was considered as a 4-H activity and was not used in the analysis at this time.

Coded Variables in the Study

In the original design for the longitudinal study several variables were described by code in order to facilitate recording and analysis. Four of these variables were used in this study and they, with their respective codes, will be found in Appendix II.

A. Code for number of cows owned for those living on farms.

B. Code for father's occupation.

C. Code for size of farm.

D. Code for tenure status.

Accommodation of Data to Each Hypothesis

For testing Hypothesis$_1$ a compilation and tabulation was made of the several kinds of 4-H projects in which the student had enrolled. Tabulation revealed that the 4-H members had concentrated their major effort on a few principal projects. In order to facilitate the analysis and make it more meaningful, a decision was made to consolidate project activity under fewer than the total thirty headings. Many members had enrolled in some projects additional to those receiving the bulk of their attention. These projects were ignored in the analysis of Hypothesis$_1$ but would be considered in Hypothesis$_2$ in relation to total numbers of projects taken.

Three major consolidations were made with the boys' projects: automotive projects were combined with the electrical projects, crop projects were combined with the home garden projects, and sheep and swine projects were combined. The resulting clustering of boys' 4-H projects produced five categories for study: dairy, electrical, garden, sheep, and woodworking projects.

The girls were grouped under the headings of clothing, food, and livestock projects.

For testing Hypothesis$_2$ a tabulation was made of the total numbers of projects taken by each subject during 4-H Club membership tenure. Seven different groupings emerged from this scrutiny of the data and the numbers of projects taken were resolved into the following categories: 1, 2, 3, 4-5-6, 7-8-9, 10-11-12, and 13 projects and over. This categorization for the analysis of data served both the boys and the girls in Hypothesis_2.

For testing Hypothesis_3 dealing with the advancement of responsibility within the major project the following levels of progression were identified:

a) no progression but no potential exists for any
b) no progression but potential exists for some
c) some progression but less than half of potential
d) over half of potential progression but less than total
e) progression each year to the maximum.

Only four of the five levels of progression were used in the final analysis as there was only one case appearing in the first category of no progression but no potential exists for any. Consequently, this case was dropped from the study for the third hypothesis only. The study subject was a boy enrolled in the light horses and ponies project.

Source of Data

The research design of the total longitudinal study involves a comprehensive study of the sample in Grades I, VI, IX, XII, and five years after graduation from high school. Of the ten communities in which these young people live, five of them began in a reorganized district structure and five of them started in the traditional multi-district structure. This probing into school performance and situational backgrounds has yielded comprehensive economic, educational, and social data on approximately 800 students. Of this number, 221 were identified as students participating in the 4-H program at some time during their school experience. Information on 4-H activity was obtained on the entire 221 members but only 142 of these were included in this particular study. Seventy-nine subjects failed to meet the criteria for analysis which stipulated that there must be data available from first to ninth grade and that they must have enrolled in twelfth grade in their respective schools. The 4-H project activity would, therefore, span their entire school attendance years. Any projects taken after completion of high school for those who did graduate were not included in the study. The attrition of numbers of subjects from 221 to 142 was attributed to drop-outs and transfers-in and transfers-out of the school system after the Grade I collection of data in the community. There is a total of 67 girls and 75 boys involved in this study.

Instruments for Collecting Data

Nineteen instruments are used for collecting data at the different grade levels. Eleven of these are standardized tests, widely used by schools throughout the United States, and the eight others have been especially prepared or adapted for the longitudinal study.

TABLE II

DATA GATHERING DEVICES FOR LONGITUDINAL STUDY

	Grade				
	I	VI	IX	XII	Post H.S.
a) Activity Questionnaire		*	*	*	
b) California Achievement Batteries (AA)				*	
c) California Achievement Batteries (W)				*	
d) Chicago Reading Test (A)	*				
e) Chicago Reading Test (C)		*			
f) 4-H Project Record-1962				*	
g) Interest Inventory	*	*	*	*	
h) Kuhlmann-Anderson Intelligence (A)	*				
i) Kuhlmann-Anderson Intelligence (F)		*			
j) Kuhlmann-Anderson Intelligence (G)			*		
k) Kuhlmann-Anderson Intelligence (H)				*	
l) Metropolitan Primary Test	*				
m) Metropolitan Intermediate Test		*			
n) Metropolitan Advanced Test			*		
o) Personal and Social Inventory		*	*	*	
p) Sewell's Socio-Economic Scale	*	*		*	
q) Teacher Interview Schedule	*	*		*	
r) Teacher's Purposes and Processes	*	*	*	*	
s) Teacher's Rating on Child and Family Traits	*	*		*	

Information from twelve of the instruments are used in this study. They are:

Activity Questionnaire

Chicago Reading Test A and C

4-H Project Record

Kuhlmann-Anderson Intelligence Test A, F, and H

Metropolitan Achievement Test Primary, Intermediate and Advanced

Sewell Socio-Economic Scale

Teacher Rating Scale on Child and Family Traits

The precise nature of these instruments has been comprehensively described by Kreitlow,[2] Barnes,[3] and Dowling.[4]

Procedures for Collecting Data

Lists of study subjects participating in the longitudinal study at the Grade IX level were compiled from the Grade IX Activity Questionnaire. Those individuals indicating 4-H Club membership were identified from this Activity Questionnaire. In February, 1962, the complete list of members and non-members was sent to the high school principals of the cooperating schools. They were asked to check the names of those who had been, or still were enrolled in Grade XII, or expected to be in Grade XII in 1963. This stipulation was made so that the 4-H information would span the entire school life of the participant. Analysis of Grade XII data was not included in this study because data for four of the schools at this grade level would not be collected until the winter of 1963 (see Figure I, page 20). It was possible, however, to obtain required 4-H information on the 4-H members in these schools at a later date and include these data in the study.

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[2] Ibid., pp. 17-18.

[3] Robert F. Barnes, "An Analysis of Personal-Social Factors and Interest Patterns at Grades VI, IX, and XII Existing Among 4-H Member, 4-H Drop-Out, and Non-4-H Member Boys and Girls in Five Wisconsin Communities" (unpublished Ph.D. dissertation, University of Wisconsin, Madison, 1963).

[4] William Dowling, "A Study of Personal and Social Behavior of Boys and Girls in Reorganized and Non-Reorganized School Districts" (unpublished Ph.D. dissertation, University of Wisconsin, Madison, 1959).

The corrected lists were sent, together with the 4-H Project Record (Appendix I) to the 4-H Agents in the thirteen County Extension Offices of those counties serving the ten communities participating in the study. The 4-H Agents were requested to transfer to this form from their 4-H records information pertaining to the projects taken and dropped, and taken and completed by those students identified as 4-H Club members in the study. Records were returned completed on 200 of the members and for the data for the remaining 21 members was sought by direct mail request to the students concerned. Data on all the Project Records were corroborated by those data appearing on the Activity Questionnaire at the Grade IX level. Only six students failed to respond to this mail request and information for them was entered on the Project Record from the Grade IX Activity Questionnaire. Only on these six students was verification of project data to the Grade IX level lacking from a second source.

Recording of Data

As cited by Kreitlow, Pierce, and Middleton[5] the boys present patterns of performance different from the girls and therefore projects were sorted by sex for each community. The records were then arranged in the numerical order of the student's permanent longitudinal study identification number. Information on each student was entered on the IBM data sheets according to the 4-H Project Study Code Sheet (Appendix II). Different colored pencils were used to enter these data for identification and for information at each grade level. This maneuver was found to be of continuing help in numerous ways throughout the analytical process. For instance, a brown pencil used for headings for information on boys and a purple one for information on girls served for ready identification of data on the sexes on the IBM data sheets, through the various sets of work tables, IBM cards, and up to and including the various kinds of print-up sheets produced by the several different machines in the Numerical Analysis Laboratory. Similarly, a blue pencil for Grade I data, a black one for Grade VI data, and a green one for Grade IX data greatly facilitated rapid location and scrutiny of scores at all levels of analysis.

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[5] Burton W. Kreitlow, Lowell Pierce, and Curtis Middleton, Who Joins 4-H Clubs? (Research Bulletin 215, University of Wisconsin, Madison, October, 1959) pp. 5-12.

Information was punched on IBM cards (Appendix III). These cards were then processed by the sorter, print-up and 1604 computer machines in the Numerical Analysis Laboratory at The University of Wisconsin.

Statistical Treatment of Data

The testing of the three null-hypotheses employed statistical analysis with rejection at the .05 per cent level. This level of significance means that differences appearing among the groups of mean scores would only occur by chance in five out of one hundred cases. Therefore, it is reasonable to conclude that the indicated differences are real and significant. Those variables which approach but did not reach significance are identified in Table LI (page 147).

A standard analysis of variance routine cannot be applied to a body of information with missing data or unequal cell sizes. Therefore a program was developed for one way classification of the analysis of variance for unequal cell routine. The program was based on Scheffe's method of analysis of variance for unequal numbers in each cell.

The error mean square suggested by Scheffe:

$$E = \frac{K.S}{d.f.}$$

$$\text{Where } K = \frac{1}{N} \sum_{i=1}^{N} \frac{1}{Ni}$$

$$S = \sum_{i=1}^{N} \sum_{j=1}^{Ni} (X_{ij} - X_{i.})^2$$

$$d.f. \sum_{i=1}^{N} (N_i - 1)$$

Appendix IV contains a sample of the two hundred and twenty-eight tables used to record the statistical analysis for each of the variables for each hypothesis.

A further test was used on those groups of mean scores evidencing a significant F value at the .05 per cent level. Since these data were categorized with unequal numbers in each cell it was considered advisable to use a technique specifically designed for unequal replications. The technique selected for this study was Duncan's Multiple Range Test.[6]

The mean scores for the group concerned must be arranged in order of magnitude. Then the following formula is applied to each pair of means in turn; and the F value obtained by the analysis of variance is significant when:

$$\bar{X}_1 - \bar{X}_2 > \sqrt{1/2 \left(\frac{1}{n_1} + \frac{1}{n_2}\right) s^2} \; z_{p,n_2}$$

When:

s^2 is the error mean square for each variable

p is the number of means concerned

n_2 is the degrees of freedom for the error mean square

z_{p,n_2} is a variable depending on the position in Duncan's Table of Significant Studentized Ranges For A 5% Level

An example of the treatment as applied to a set of mean scores for Metropolitan Achievement Test for Boys at

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[6] Clyde Young Kramer, Extension of Multiple Range Tests To Group Means With Unequal Numbers of Replications, Biometrics, XII, September, 1956, pp. 307-310.

Grade I is found in Appendix V. It yielded an F of 3.67 when an F of 2.74 was required to indicate significance. The mean scores joined by a common underline are not significantly different but they are each different from the mean score not joined to them.

A visual means of identifying those means which are not significantly different from each other is achieved by underlining.

The mean scores joined by a common line are not significantly different from each other, but are each significantly different from other mean scores in a group not linked in this manner.

Conclusions

The conclusions deduced from the analysis of data are most applicable to those communities in Wisconsin which are similar to the ten communities studied.

CHAPTER IV

ANALYSIS OF DATA

Introduction

The data for the nineteen variables will be grouped under the headings of educational, socio-economic, and teacher rating factors and presented in table form for each of the three hypotheses in turn. The tables for the educational factors for Grades I, VI, and IX will be presented first for boys and then for girls. These tables will be followed by the socio-economic factors for Grades I and VI, first for boys and then for girls, and then the teacher rating factors for Grades I and VI, first for boys and then for girls.

Only educational factors relating to standardized tests are presented for Grade IX. This situation prevails as neither the Sewell Socio-Economic Scale nor the Teacher Rating Scale (from which socio-economic and teacher evaluations are extracted) are administered at Grade IX. The reader is reminded that the Teacher Rating Scale is reversed. A rating of one is an excellent rating, a rating of five is a poor rating.

The highest school grade attained by father and mother appear only on Grade I tables for educational factors as the level of educational attainment of parents does not change but remains constant throughout the study.

Analysis of Hypothesis_1

Hypothesis_1--There is no difference in the educational and socio-economic background of youngsters selecting different kinds of 4-H projects.

Tables III through XVIII present data pertaining to the first hypothesis on the kinds of 4-H projects selected.

1. Educational Factors for Grade I Boys

Table III shows that there are no significant differences among the means of educational factors of Grade I boys categorized on the 4-H dairy, electrical, garden, sheep, and woodworking projects. The Metropolitan Achievement Test with an F of 1.71 is worthy of note. Although not large enough for the 2.51 required at the .05 per cent level of significance, it is larger than the F obtained for either of the other standardized tests at Grade I. The mean scores for the Metropolitan Achievement Test vary from 113.6 for garden project members to 83.0 for the electrical project members, giving a difference of 30.6 points.

The highest mean score for the Chicago Reading Test also occurs among the garden project members. The dairy and sheep project members ranked first and second for the mean scores of Kuhlmann-Anderson Mental Age. The lowest

TABLE III

ANALYSIS OF VARIANCE OF EDUCATIONAL FACTORS FOR GRADE I BOYS CATEGORIZED BY KINDS OF 4-H CLUB PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		KINDS OF PROJECTS							
			Dairy	Electrical	Garden	Sheep	Woodworking	N	F	Sig.
1.	Chicago Reading Test	N	21	8	18	6	21	74		
		$\bar{X}$	32.8	28.6	35.7	34.8	31.1		.70	No
2.	Kuhlmann-Anderson Mental Age	N	21	8	18	6	22	75		
		$\bar{X}$	87.3	85.3	85.8	86.8	85.2		.41	No
3.	Metropolitan Achievement Test	N	21	8	18	6	22	75		
		$\bar{X}$	104.9	83.0	113.5	96.0	90.7		1.71	No
4.	School Grade of Father	N	21	8	18	6	22	75		
		$\bar{X}$	9.2	10.0	9.0	7.8	9.3		1.91	No
5.	School Grade of Mother	N	21	8	18	6	22	75		
		$\bar{X}$	11.0	9.1	11.0	9.3	10.2		1.48	No

mean score for the Chicago Reading Test and the Kuhlmann-Anderson Mental Age were obtained by members of the woodworking project.

The highest mean score of 10.0 years for schooling of father was obtained by the electrical project members. Dairy and garden club members show the highest mean score of 11.0 for the schooling of mother.

There is no particular pattern of high or low achievement shown in Table I for educational factors in Grade I for boys.

2. Educational Factors for Boys Grade VI

Table IV displays the educational factors for Grade VI boys. There were no significant differences among the mean scores. The highest mean score for the Chicago Reading Test was obtained by the members in the electrical project and the lowest mean score was obtained by members in the dairy project.

The boys in the garden project had the highest mean score for Kuhlmann-Anderson Mental Age while the boys in the electrical project had the lowest mean score for this factor. The electrical project members had the highest mean score for the Metropolitan Achievement Test and the sheep project members had the low mean score for this standardized test.

Table IV shows a variation in the differences between high and low mean scores for the three standardized

TABLE IV

ANALYSIS OF VARIANCE OF EDUCATIONAL FACTORS FOR GRADE VI BOYS CATEGORIZED BY KINDS OF 4-H CLUB PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		KINDS OF PROJECTS							
			Dairy	Electrical	Garden	Sheep	Woodworking	N	F	Sig.
1.	Chicago Reading Test	N	21	8	18	6	20	73		
		$\bar{X}$	89.0	101.3	93.0	99.8	95.9		.53	No
2.	Kuhlmann-Anderson Mental Age	N	21	8	18	6	22	75		
		$\bar{X}$	145.9	145.2	152.7	146.8	146.9		.56	No
3.	Metropolitan Achievement Test	N	21	8	17	5	22	73		
		$\bar{X}$	289.2	313.0	307.9	270.8	281.9		.43	No

tests. The difference is 12.4 for the Chicago Reading Test, 7.5 for the Kuhlmann-Anderson Mental Age, and 42.2 for the Metropolitan Achievement Test.

3. Educational Factors for Boys at Grade IX

The mean scores for the standardized tests for Grade IX boys are presented in Table V. The highest mean score for the Kuhlmann-Anderson Mental Age was shown by the garden project members with woodworking, dairy sheep, and electrical project members following in descending order.

The woodworking project provided the highest mean score for the Metropolitan Achievement Test followed by the sheep, garden, dairy, and electrical project members in descending order. Neither F value was significant at the .05 per cent level.

4. Summary of Educational Factors for Boys at Grades I, VI, and IX

Table VI presents a summary of mean scores for the standardized tests for boys at Grades I, VI, and IX.

The boys in the garden project had the highest mean score for the Chicago Reading Test at Grade I, but ranked fourth for this test at Grade VI. The boys in the electrical project had the lowest mean score for the Chicago Reading Test in Grade I but obtained the highest mean score for this test for Grade VI.

TABLE V

ANALYSIS OF VARIANCE OF EDUCATIONAL FACTORS FOR GRADE IX BOYS CATEGORIZED BY KINDS OF 4-H CLUB PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		KINDS OF PROJECTS							
			Dairy	Electrical	Garden	Sheep	Woodworking	N	F	Sig.
2.	Kuhlmann-Anderson Mental Age	N	21	7	18	8	22	74		
		$\bar{X}$	184.7	177.5	190.2	181.3	186.3		.37	No
3.	Metropolitan Achievement Test	N	21	7	18	8	22	74		
		$\bar{X}$	301.9	301.1	323.6	330.8	333.1		.47	No

TABLE VI

ANALYSIS OF VARIANCE OF EDUCATIONAL FACTORS FOR BOYS AT GRADES I, VI, AND IX CATEGORIZED BY KINDS OF 4-H PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	GR.	VARIABLE		KINDS OF PROJECTS							
				Dairy	Electrical	Garden	Sheep	Woodworking	N	F	Sig.
1.	I	Chicago Reading Test	N	21	8	18	6	21	74		
			$\bar{X}$	32.8	28.6	35.7	34.8	31.0		.70	No
	VI		N	21	8	18	6	20	73		
			$\bar{X}$	89.0	101.3	93.0	99.8	95.9		.53	No
2.	I	Kuhlmann-Anderson Mental Age	N	21	8	18	6	22	75		
			$\bar{X}$	87.3	85.3	85.8	86.8	85.1		.40	No
	VI		N	21	8	18	6	22	75		
			$\bar{X}$	145.9	145.3	152.7	146.8	146.9		.56	No
	IX		N	21	7	18	8	22	74		
			$\bar{X}$	184.7	177.6	190.2	181.3	186.3		.36	No
3.	I	Metropolitan Achievement Test	N	21	8	18	6	22	75		
			$\bar{X}$	104.9	83.0	113.5	96.0	90.7		1.71	No
	VI		N	21	8	17	5	22	73		
			$\bar{X}$	289.2	313.0	307.7	270.8	281.9		.43	No
	IX		N	21	7	18	8	22	74		
			$\bar{X}$	301.9	301.1	323.6	330.8	333.2		.48	No

At Grade I the boys in the dairy project had the high mean score for the Kuhlmann-Anderson Mental Age Test but ranked fourth for this test at Grade VI and ranked third at Grade IX. The low mean score for the Kuhlmann-Anderson Mental Age Test at Grade I was obtained by the boys in the woodworking project, while the boys in the electrical project had the low mean score for this test at both Grade VI and Grade IX.

The high mean score for the Metropolitan Achievement Test was obtained by the boys in the garden project, at Grade I, by the members in the Electrical project at Grade VI, and by the boys in the woodworking project at Grade IX. The low mean scores for the Metropolitan Achievement Test at Grade I and Grade IX were obtained by the members in the electrical project and at Grade VI by members in the sheep project.

There does not appear to be any consistent pattern of achievement for the boys in different projects taking the standardized tests at Grades I, VI, and IX, as rank order from high to low mean scores vary for each test throughout the summary of data in Table VI.

5. Educational Factors for Grade I Girls

The high mean scores for each of the three standardized tests for girls at Grade I shown in Table VII were gained by the clothing project members in each case, the next highest mean score was obtained by the food

TABLE VII

ANALYSIS OF VARIANCE OF EDUCATIONAL FACTORS FOR GRADE I GIRLS CATEGORIZED BY KINDS OF 4-H PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		PROJECTS					
			Clothing	Food	Livestock	N	F	Significance
1.	Chicago Reading Test	N	32	23	11	66		
		$\bar{X}$	44.2	42.2	40.8		.47	No
2.	Kuhlmann-Anderson Mental Age	N	32	24	11	67		
		$\bar{X}$	88.9	87.3	86.8		1.14	No
3.	Metropolitan Achievement Test	N	32	24	11	67		
		$\bar{X}$	124.2	119.8	112.2		1.02	No
4.	School Grade of Father	N	32	24	11	67		
		$\bar{X}$	9.9	9.5	9.6		.13	No
5.	School Grade of Mother	N	32	24	11	67		
		$\bar{X}$	10.0	10.1	12.0		5.99	Yes

project members, and the lowest mean score by the girls in the livestock project. There was little difference in the mean scores for schooling of father but the high mean score for the schooling of mother of the girls in the livestock project was 2.1 points higher than that of the mean score for this factor for the girls in the clothing project and 2.0 points higher than the mean score for this factor obtained by the food club members.

The F value of 5.99 obtained for the schooling of mother is significant at the .05 per cent level of significance.

Applying Duncan's Multiple Range Test for the differences between means for the schooling of mother of girls, the following results are obtained:

Order	1	2	3
Category	Livestock	Food	Clothing
N	11	24	32
$\bar{X}$	12.0	10.1	10.0

There is no significant difference between the mean scores for the girls in food and clothing but there is a significant difference between the schooling of mothers of the members in these two projects and those mothers who have members in the livestock projects.

6. Educational Factors for Grade VI Girls

Table VIII depicts the mean scores for the educational factors for girls at Grade VI categorized on the kinds of projects taken during 4-H Club tenure.

TABLE VIII

ANALYSIS OF VARIANCE OF EDUCATIONAL FACTORS FOR GRADE VI GIRLS CATEGORIZED BY KINDS OF 4-H PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		PROJECTS					
			Clothing	Food	Livestock	N	F	Significance
1.	Chicago Reading Test	N	32	24	11	67		
		$\bar{X}$	105.6	102.4	99.1		.64	No
2.	Kuhlmann-Anderson Mental Age	N	32	24	11	67		
		$\bar{X}$	159.0	154.9	156.1		.45	No
3.	Metropolitan Achievement Test	N	32	24	11	67		
		$\bar{X}$	331.9	334.1	295.9		1.87	No

The girls in the clothing project had the highest mean score for the Chicago Reading Test, while the girls in the food project ranked second, and the livestock members ranked third.

The girls in the clothing project obtained the highest mean score in the Kuhlmann-Anderson Mental Age Test, while the livestock project members ranked second, and the food project members ranked third.

In the Metropolitan Achievement Test the high mean score was obtained by the food project members, the second high score by the clothing club members, and the lowest score by the members in the livestock project.

None of the F values obtained were significant at the .05 per cent level although the F of 1.9 was obtained for the Metropolitan Achievement Test calling attention to the total difference of 38.3 points between the highest and the lowest mean score.

7. Educational Factors for Grade IX Girls

Table IX indicates that in the standardized tests for Grade IX girls there is very little difference between the mean scores of the members in the three project categories for the Kuhlmann-Anderson Mental Age Test. For this test there is only a difference of 1.2 months between the clothing and livestock members, in favor of the clothing project.

TABLE IX

ANALYSIS OF VARIANCE OF EDUCATIONAL FACTORS FOR GRADE IX GIRLS CATEGORIZED BY KINDS OF 4-H PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		PROJECTS			N	F	Significance
			Clothing	Food	Livestock			
2.	Kuhlmann-Anderson Mental Age	N	32	24	11	67		
		$\bar{X}$	199.3	190.2	198.0		.94	No
3.	Metropolitan Achievement Test	N	32	24	11	67		
		$\bar{X}$	362.0	353.5	357.3		.01	No

The mean scores for the Metropolitan Achievement Test also show only a slight variation. The members of the clothing project had the highest mean score and the livestock project members ranked second with only 3.4 points less, and the food project members ranked third with only 3.8 points less than the livestock members.

8. Summary of Educational Factors for Girls at Grades I, VI, and IX

Table X relates, in summary, the mean scores for the educational factors for girls at Grades I, VI, and IX.

The clothing project members obtained the high mean score for the Chicago Reading Test at Grades I and VI, followed in second place by the members of the food project, and in third place by members of the livestock project in both instances.

The mean scores for the Kuhlmann-Anderson Mental Age Test reveal that the members were ranked in order by clothing, food, and livestock projects at Grade I, with a total difference between clothing and livestock members of 2.1 months. For Grades VI and IX the rank order changed to clothing, lovestock, and food project members for the Kuhlmann-Anderson Mental Age. At Grade VI the total difference between highest and lowest mean score was 4.1 months, and at Grade IX the difference was 9.0 months.

The high mean score for the Metropolitan Achievement Test was obtained by the clothing project members at Grades I and IX, but by the food project members in

TABLE X

ANALYSIS OF VARIANCE OF EDUCATIONAL FACTORS FOR GIRLS AT GRADES I, VI, AND IX CATEGORIZED BY KINDS OF 4-H PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	GR.	VARIABLE		PROJECTS					
				Clothing	Food	Livestock	N	F	Significance
1.	I	Chicago Reading Test	N	32	23	11	66		
			$\bar{X}$	44.2	42.2	40.7		.46	No
	VI		N	32	24	11	67		
			$\bar{X}$	105.6	102.4	99.1		.64	No
2.	I	Kuhlmann-Anderson Mental Age	N	32	24	11	67		
			$\bar{X}$	88.9	87.3	86.8		1.15	No
	VI		N	32	24	11	67		
			$\bar{X}$	159.0	154.9	156.2		.45	No
	IX		N	32	24	11	67		
			$\bar{X}$	199.3	190.2	198.0		.94	No
3.	I	Metropolitan Achievement Test	N	32	24	11	67		
			$\bar{X}$	124.2	119.8	112.2		1.02	No
	VI		N	32	24	11	67		
			$\bar{X}$	331.9	334.1	295.9		1.87	No
	IX		N	32	24	11	67		
			$\bar{X}$	362.0	353.5	357.3		.01	No

Grade IV. The livestock project members obtained the lowest mean score at Grades I and VI, but achieved second position at Grade IX with 4.6 months below the first place clothing members.

None of the F values obtained were significant at the .05 per cent level.

9. Socio-Economic Factors for Boys at Grade I

The mean scores for the seven socio-economic factors for boys at Grade I are presented in Table XI.

The dairy project members have parents participating in more organizations than do the parents of the sheep project members, and the parents of the woodworking project members participate in more organizations than do either of these.

The number of cows owned is larger, as would be expected, for the dairy project members, and is probably related to the fact that the highest mean score for the Sewell Socio-Economic Scale is associated with this project also. The sheep project had the lowest mean score for Sewell Socio-Economic Scale.

An F of 2.33 was obtained from analysis of the mean scores for size of farm but was not as large as the 2.51 required for significance at the .05 per cent level. The electrical project members had the highest mean score for the size of farm and the garden project members the lowest score.

TABLE XI

ANALYSIS OF VARIANCE OF SOCIO-ECONOMIC FACTORS FOR GRADE I BOYS CATEGORIZED BY KINDS OF 4-H CLUB PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		KINDS OF PROJECTS							
			Dairy	Electrical	Garden	Sheep	Woodworking	N	F	Sig.
6.	Children in Family	N	21	8	18	6	21	74		
		$\bar{X}$	3.5	3.6	3.3	4.5	3.4		.82	No
7.	Cows Owned by Family	N	21	6	15	6	16	64		
		$\bar{X}$	5.7	5.3	3.2	5.0	4.3		2.74	Yes
8.	Organizations to which Parents Belong	N	21	8	18	6	21	74		
		$\bar{X}$	2.9	1.5	2.5	1.3	3.0		1.56	No
9.	Occupation of Father	N	20	7	17	6	19	69		
		$\bar{X}$	4.0	4.0	4.2	3.6	3.8		.87	No
10.	Sewell Socio-Economic Score	N	21	8	18	6	22	75		
		$\bar{X}$	77.7	75.7	70.8	69.1	77.0		1.14	No
11.	Size of Farm	N	21	6	16	6	15	64		
		$\bar{X}$	4.2	4.8	3.0	3.8	3.4		2.33	No
12.	Tenure Status of Farm	N	20	7	16	6	16	65		
		$\bar{X}$	1.3	1.7	1.3	1.0	1.3		1.04	No

A significant F value of 2.74 was obtained from analysis of the mean scores for number of cows owned by those living on farms. Duncan's Multiple Range Test was applied to the mean scores of number of cows owned for boys at Grade I, and the following results were obtained:

Order	1	2	3	4	5
Category	Dairy	Elec'l	Sheep	Wood'g	Garden
N	21	6	6	16	15
$\bar{X}$	5.7	5.3	5.0	4.3	3.2

There are no significant differences between the mean scores for the electrical and sheep project members but there are significant differences between these and the number of cows owned by dairy, woodworking, and garden members. There are also significant differences between the dairy, woodworking and garden club members.

10. Socio-Economic Factors for Boys at Grade VI

Table XII relates the mean scores for the socio-economic factors for boys at Grade VI.

The high mean score for the number of cows owned by those living on farms and the number of organizations to which parents belong and the second high mean score for the Sewell Socio-Economic Scale are associated with the dairy project members. A difference of .2 gave the woodworking project members the highest mean score for the Sewell Socio-Economic Scale. A difference of 5.3 gave the sheep project members the lowest mean score for the

TABLE XII

ANALYSIS OF VARIANCE OF SOCIO-ECONOMIC FACTORS FOR GRADE VI BOYS CATEGORIZED BY KINDS OF 4-H CLUB PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		KINDS OF PROJECTS							
			Dairy	Electrical	Garden	Sheep	Woodworking	N	F	Sig.
6.	Children in Family	N	21	8	17	4	22	72		
		$\bar{X}$	3.9	4.0	4.4	6.8	3.8		4.01	Yes
7.	Cows Owned by Family	N	21	5	14	4	14	58		
		$\bar{X}$	6.0	5.8	4.1	4.7	4.5		1.13	No
8.	Organizations to which Parents Belong	N	21	7	17	4	21	70		
		$\bar{X}$	3.7	1.5	3.5	1.7	3.3		1.3	No
9.	Occupation of Father	N	21	8	17	4	20	70		
		$\bar{X}$	4.0	3.6	4.2	4.5	4.2		1.3	No
10.	Sewell Socio-Economic Score	N	21	8	17	5	22	73		
		$\bar{X}$	77.6	77.3	75.7	72.6	77.8		.58	No
11.	Size of Farm	N	21	5	14	4	14	58		
		$\bar{X}$	4.2	4.8	3.3	4.0	4.2		.6	No
12.	Tenure Status of Farm	N	20	5	15	4	14	58		
		$\bar{X}$	1.1	1.0	1.6	1.0	1.0		1.17	No

Sewell Socio-Economic Scale, a position it held in Table XI although it had risen from 69.2 to 72.6 between Grade I and Grade VI.

The small difference between 6.0 for number of cows owned by dairy club members and 5.8 for number of cows owned by electrical club members could be attributed to the fact that many electrical club members live on dairy farms.

11. Socio-Economic Factors for Girls at Grade I

Table XIII deals with the mean scores for the socio-economic factors for girls at Grade I categorized according to kinds of 4-H projects.

The highest mean score for the number of cows owned by those living on farms when the child was at Grade I is associated with the livestock project members which is to be expected.

The highest mean score for the Sewell Socio-Economic Scale was obtained by the girls in the livestock project. In view of the fact that the high mean score for the number of cows owned and the number of organizations to which parents belong is also associated with this project this congruency is to be expected.

A significant F value of 4.74 was obtained from an analysis of the data and is associated with the number of organizations to which parents belonged at child's Grade I level. An F value of 3.14 was required for

TABLE XIII

ANALYSIS OF VARIANCE OF SOCIO-ECONOMIC FACTORS FOR GRADE I GIRLS CATEGORIZED BY KINDS OF 4-H CLUB PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		PROJECTS					
			Clothing	Food	Livestock	N	F	Significance
6.	Children in Family	N	32	24	10	66		
		$\bar{X}$	3.9	3.5	3.9		.23	No
7.	Cows Owned by Family	N	19	18	11	48		
		$\bar{X}$	4.6	4.2	5.4		1.24	No
8.	Organizations to which Parents Belong	N	31	23	10	64		
		$\bar{X}$	2.1	2.2	4.0		4.74	Yes
9.	Occupation of Father	N	30	24	10	64		
		$\bar{X}$	4.2	4.0	4.0		.15	No
10.	Sewell Socio-Economic Score	N	32	24	10	66		
		$\bar{X}$	72.2	75.5	77.6		1.08	No
11.	Size of Farm	N	20	16	10	46		
		$\bar{X}$	3.7	3.4	3.4		.13	No
12.	Tenure Status of Farm	N	24	18	10	52		
		$\bar{X}$	1.5	1.3	1.2		.76	No

significance. Subjecting the mean scores for the number of organizations to which parents belong to Duncan's Multiple Range Test, the following results were obtained:

Order	1	2	3
Category	Livestock	Food	Clothing
N	10	23	31
$\bar{X}$	4.0	2.2	2.1

The underscore indicates that there is no significant difference between the number of organizations to which the parents of food and clothing members belong. There is, however, a significant difference between these and the higher number to which the parents of livestock members belong.

12. Socio-Economic Factors for Girls at Grade VI

Table XIV shows the mean scores for the socio-economic factors for girls at Grade VI categorized according to kinds of 4-H projects.

Members of the clothing project were credited with the largest farm size as they were at Grade I in Table XIII.

Consistency with Table XIII appeared as the largest number of cows owned, greatest number of organizations to which parents belonged, and the highest mean score for the Sewell Socio-Economic Scale were all attributed to the members of the livestock projects.

An F value of 3.23 was required for significance at the .05 per cent level, therefore the F value of 4.4

TABLE XIV

ANALYSIS OF VARIANCE OF SOCIO-ECONOMIC FACTORS FOR GRADE VI GIRLS CATEGORIZED BY KINDS OF 4-H PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		PROJECTS					
			Clothing	Food	Livestock	N	F	Significance
6.	Children in Family	N	31	24	11	66		
		$\bar{X}$	4.4	4.0	4.0		.18	No
7.	Cows Owned by Family	N	18	13	11	42		
		$\bar{X}$	5.1	4.3	6.8		4.36	Yes
8.	Organizations to which Parents Belong	N	30	22	11	63		
		$\bar{X}$	3.0	3.3	4.7		2.50	No
9.	Occupation of Father	N	31	23	11	65		
		$\bar{X}$	4.0	4.3	3.9		.47	No
10.	Sewell Socio-Economic Score	N	31	24	11	66		
		$\bar{X}$	74.6	75.4	80.4		1.87	No
11.	Size of Farm	N	19	15	11	45		
		$\bar{X}$	3.8	3.3	3.5		.32	No
12.	Tenure Status of Farm	N	20	15	11	46		
		$\bar{X}$	1.3	1.0	1.2		.44	No

yielded by analysis of the data for number of cows owned by those living on farms merited further testing by Duncan's Multiple Range Test. By applying this test to the mean scores for number of cows owned by the family for girls at Grade VI, the following results were obtained:

Order	1	2	3
Category	Livestock	Clothing	Food
N	11	18	13
$\overline{X}$	6.8	5.1	4.3

There was a significant difference between each of the three means for livestock, clothing, and food projects, therefore no underlining was necessary.

13. Teacher Rating Factors for Boys at Grade I

The teacher rating factors in Table XV show no significant differences among the mean scores. The highest value for F is 1.71 and is produced by the analysis of the means for family financial status, but is still not sufficiently large to meet the value of F of 2.51 for significance.

The lower means for the rating on child's achievement in school, child's emotional stability, and child's willingness to work appearing for the members of the woodworking project indicate that they are rated more highly by the teacher at Grade I on these factors than are the members taking other projects.

The sheep project members are given the high mean score for child's emotional stability and the electrical

TABLE XV

ANALYSIS OF VARIANCE OF TEACHER RATING FACTORS FOR GRADE I BOYS CATEGORIZED BY KINDS OF 4-H CLUB PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		KINDS OF PROJECTS							
			Dairy	Electrical	Garden	Sheep	Woodworking	N	F	Sig.
13.	Child's Achievement in School	N	21	8	18	6	22	75		
		$\bar{X}$	3.0	2.8	3.0	3.0	2.7		.46	No
14.	Child's Emotional Stability	N	20	8	18	6	22	74		
		$\bar{X}$	3.0	3.1	3.0	3.3	2.8		.69	No
15.	Child's Home Opportunities	N	20	7	17	6	21	71		
		$\bar{X}$	2.9	3.1	3.1	3.1	2.9		.25	No
16.	Child's Willingness to Work	N	21	8	18	6	22	75		
		$\bar{X}$	3.0	3.0	2.9	3.0	2.6		.41	No
17.	Family's Educational Status	N	21	7	18	6	22	74		
		$\bar{X}$	3.1	3.0	3.0	3.0	3.0		.11	No
18.	Family's Family Background	N	21	8	16	6	23	72		
		$\bar{X}$	3.0	3.0	2.8	2.8	2.8		.26	No
19.	Family's Financial Status	N	21	8	18	6	22	75		
		$\bar{X}$	3.0	3.3	3.1	3.0	2.8		1.17	No

project has the high mean score for the family's financial status, indicating a lower evaluation by the teacher on these factors.

The sheep project members in Grade I (Table XI) were credited with a low rating for the Sewell Socio-Economic Scale, and some causal relationship may be emerging from the low value given to these two teacher rating factors. This interpretation is further strengthened by the low rating given to child's home opportunities for the sheep project members at Grade I.

The teacher rated the child's home opportunities higher at Grade I for those boys in woodworking and dairy projects. This superior rating may be related to the higher mean score given to members in these two projects for the Sewell Socio-Economic Scale at Grade I in Table XI.

14. Teacher Rating Factors for Boys at Grade VI

The analysis of teacher rating factors for Grade VI boys in Table XVI indicates that the sheep club members are rated more highly by the teacher on child's achievement at school, child's emotional stability, and child's willingness to work than are the members with other projects.

The F value of 1.96 for the child's achievement in school for Grade VI boys is not high enough for a significant figure of 2.51. The table reveals that in the teacher's judgment the woodworking project members

TABLE XVI

ANALYSIS OF VARIANCE OF TEACHER RATING FACTORS FOR GRADE VI BOYS CATEGORIZED BY KINDS OF 4-H CLUB PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		KINDS OF PROJECTS							
			Dairy	Electrical	Garden	Sheep	Woodworking	N	F	Sig.
13.	Child's Achievement in School	N	21	8	18	6	22	75		
		$\bar{X}$	2.8	2.6	2.8	2.0	2.9		1.9	No
14.	Child's Emotional Stability	N	21	8	18	6	22	75		
		$\bar{X}$	2.8	2.6	2.6	2.3	2.8		.78	No
15.	Child's Home Opportunities	N	21	8	18	6	22	75		
		$\bar{X}$	2.6	2.8	3.0	3.1	2.8		.63	No
16.	Child's Willingness to Work	N	21	8	18	6	22	75		
		$\bar{X}$	2.5	2.6	2.5	2.0	2.8		1.48	No
17.	Family's Educational Status	N	21	7	17	6	21	72		
		$\bar{X}$	2.9	2.7	3.0	3.1	3.1		.75	No
18.	Family's Family Background	N	21	7	18	6	22	74		
		$\bar{X}$	2.7	3.0	2.8	2.8	2.9		.28	No
19.	Family's Financial Status	N	21	8	18	6	22	75		
		$\bar{X}$	2.7	2.3	3.3	3.0	2.9		2.93	Yes

do not possess as great an ability to achieve as do the sheep project members at the Grade VI level. The sheep project members also indicate a greater effort in the child's willingness to work than do the woodworking project members. There may be some relationship between this evaluation of the child's willingness to work and the low Sewell Socio-Economic Scale mean score for sheep members at Grade VI for boys and a high mean score at the same grade level for the woodworking members for this factor.

An F value of 2.51 was required for significance at the .05 per cent level. The analysis of data for the teacher's rating of family's financial status for boys at Grade VI yielded an F value of 2.93, which necessitated a further testing of the mean scores by Duncan's Multiple Range Test with the following results:

Order	1	2	3	4	5
Category	Garden	Sheep	Wood'g	Dairy	Elect'l
N	18	6	22	21	8
$\bar{X}$	3.3	3.0	2.9	2.7	2.3

This test revealed that there was no significant difference between the mean scores of the boys in the sheep and woodworking projects but that there was a significant difference between these two and the garden, dairy, and electrical project members. This finding and the fact that the dairy and electrical project members were rated more highly by the teacher than other project members on family's financial status correlates with the findings in Tables XI and XII in which the sheep and garden project members had lower Sewell Socio-Economic Scale scores than did the members of the other projects.

15. Teacher Rating Factors for Girls at Grade I

Table XVII gives the mean scores for the seven teacher rating factors for Grade I girls. With only one exception - family's family background - the clothing project members have a lower rating for these factors than do either the food or livestock project members. With only one exception - the child's emotional stability - the food project renders a lower rating than the livestock project for the teacher rating factors. The lower mean score for the livestock project members in the various factors implies that in the teacher's opinion, the livestock members excel in these traits at the Grade I level.

The excellent rating for child's achievement in school given by the teacher to the livestock girls is the reverse of their performance in educational achievement in Grade I (Table VII). The high rating given for the other six factors - child's emotional stability, child's home opportunities, child's willingness to work, may be the result of superior home conditions as revealed by the high mean scores acquired by the members of the livestock project in Table XIII for number of cows owned by those living on farms, number of organizations to which parents belong, and Sewell Socio-Economic Scale.

TABLE XVII

ANALYSIS OF VARIANCE OF TEACHER RATING FACTORS FOR GRADE I GIRLS CATEGORIZED BY KINDS OF 4-H CLUB PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		PROJECTS					
			Clothing	Food	Livestock	N	F	Significance
13.	Child's Achievement in School	N	31	23	11	65		
		$\bar{X}$	2.6	2.4	2.3		.41	No
14.	Child's Emotional Stability	N	31	23	11	65		
		$\bar{X}$	3.0	2.7	2.8		.37	No
15.	Child's Home Opportunities	N	31	22	10	63		
		$\bar{X}$	2.8	2.8	2.7		.20	No
16.	Child's Willingness to Work	N	31	23	11	65		
		$\bar{X}$	2.6	2.3	2.2		.73	No
17.	Family's Educational Status	N	31	24	11	66		
		$\bar{X}$	3.1	3.1	2.9		.14	No
18.	Family's Family Background	N	31	22	11	64		
		$\bar{X}$	3.0	3.0	3.0		0	No
19.	Family's Financial Status	N	32	24	11	67		
		$\bar{X}$	3.1	3.0	3.0		.33	No

16. Teacher Rating Factors for Girls at Grade VI

Table XVIII depicts the teacher rating factors for Grade VI girls. No significant F values at the .05 per cent level were obtained.

The livestock project members are given a lower rating on five of these factors. Namely, child's achievement in school, child's emotional stability, child's home opportunities, child's willingness to work, and family's educational status. The rating for child's home opportunities is the same as that given them at Grade I (Table XVII). Otherwise this rating is the reverse of that given them in Grade I and indicates that in the opinion of the teacher at the Grade VI level the livestock project members do not excel in these traits as do the food and clothing project members nor as they themselves did at Grade I. In the judgment of the teacher the food project members are credited with a higher standing than the clothing project members in child's achievement in school, child's emotional stability, and child's home opportunities.

The clothing club members excel both food and livestock members in the child's willingness to work, and the high rating for child's achievement in school is borne out by their high educational mean scores at Grade VI in Table VIII.

Family's financial status received an almost equal rating for clothing, food, and livestock members.

TABLE XVIII

ANALYSIS OF VARIANCE OF TEACHER RATING FACTORS FOR GRADE VI GIRLS CATEGORIZED BY KINDS OF 4-H CLUB PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		PROJECTS					
			Clothing	Food	Livestock	N	F	Significance
13.	Child's Achievement in School	N	32	24	11	67		
		$\bar{X}$	2.3	2.3	2.5		.22	No
14.	Child's Emotional Stability	N	32	24	11	67		
		$\bar{X}$	2.5	2.5	3.0		1.91	No
15.	Child's Home Opportunities	N	32	24	11	67		
		$\bar{X}$	2.6	2.4	2.7		.93	No
16.	Child's Willingness to Work	N	32	24	11	67		
		$\bar{X}$	2.0	2.1	2.4		1.38	No
17.	Family's Educational Status	N	32	24	10	66		
		$\bar{X}$	2.8	2.8	3.0		.36	No
18.	Family's Family Background	N	32	24	11	67		
		$\bar{X}$	2.7	2.8	2.7		.43	No
19.	Family's Financial Status	N	32	24	11	67		
		$\bar{X}$	3.0	3.0	3.0		.08	No

Summary of Hypothesis$_1$

On the basis of the findings in the analysis of data the hypothesis that there is no difference in the educational and socio-economic backgrounds of youngsters choosing different kinds of projects is rejected.

Analysis of Hypothesis$_2$

Hypothesis$_2$--There is no difference in the educational and socio-economic background of youngsters selecting different numbers of projects.

Tables XIX through XXXIV present data for boys and girls in Grades I, VI, and IX related to the numbers of projects taken by the study subjects during their term of 4-H Club membership. There are seven categories into which the club members are grouped for the testing of Hypothesis$_2$.

1. Educational Factors for Boys at Grade I

The highest mean score for the schooling of father and the schooling of mother is attributed to those members who have carried 10-12 projects during their membership tenure. The high mean scores for the Chicago Reading Test and the Metropolitan Achievement Test and the second highest mean score for the Kuhlmann-Anderson Mental Age are also associated with the members in the 10-12 category.

The analysis of the mean scores for the standardized tests in Table XIX yield only one significant F value of 3.15 and that is for the schooling of mother.

Applying Duncan's Multiple Range Test for the differences between means to the mean scores on schooling of mother for boys, the following evidence emerges:

TABLE XIX

ANALYSIS OF VARIANCE OF EDUCATIONAL FACTORS FOR GRADE I BOYS CATEGORIZED BY NUMBERS OF 4-H PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		NUMBERS OF PROJECTS									
			1	2	3	4-6	7-9	10-12	13 up	N	F	Sig.
1.	Chicago Reading Test	N	15	8	10	13	8	6	14	74		
		$\bar{X}$	33.0	34.0	32.4	30.4	26.2	36.8	36.7		.98	No
2.	Kuhlmann-Anderson Mental Age	N	15	8	10	13	9	6	14	75		
		$\bar{X}$	85.4	84.0	87.9	86.3	86.0	86.6	86.1		.54	No
3.	Metropolitan Achievement Test	N	15	8	10	13	9	6	14	75		
		$\bar{X}$	98.0	92.6	104.4	95.3	90.6	123.8	102.1		1.20	No
4.	School Grade of Father	N	15	8	10	13	9	6	14	75		
		$\bar{X}$	8.7	9.6	8.7	9.0	9.3	10.3	9.2		.81	No
5.	School Grade of Mother	N	15	8	10	13	9	6	14	75		
		$\bar{X}$	9.4	11.1	9.2	9.6	12.1	12.5	10.8		3.15	Yes

Order	1	2	3	4	5	6	7
Category	10-12	7-9	2	13 up	4-6	1	3
N	6	9	8	14	13	15	10
$\bar{X}$	12.5	12.1	11.1	10.8	9.6	9.4	9.2

Those mean scores not joined by the same line are significantly different.

There is no significant difference in the mean scores for those members who carried 10-12 and 7-9 projects but these differ from the mean scores in the other five categories. Likewise, no significant difference exists between those members who took 2 or 13 projects and over, or between those who took 4-6, 1, or 3 projects.

2. Educational Factors for Boys at Grade VI

Table XX presents the mean scores for the three standardized tests for Grade VI boys.

The mean scores for all three tests fluctuate throughout the table from the scores for those taking one project to those taking 7-9 projects. The mean scores reach their high point in the 10-12 category for the three tests and then drop abruptly in the next category for 13 projects and over. This may indicate that the higher achievers in school do not stay in club work for the longest period.

The mean scores for those members taking two projects and over are less than the mean scores for those

TABLE XX

ANALYSIS OF VARIANCE OF EDUCATIONAL FACTORS FOR GRADE VI BOYS CATEGORIZED BY NUMBERS OF 4-H PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		NUMBERS OF PROJECTS									
			1	2	3	4-6	7-9	10-12	13 up	N	F	Sig.
1.	Chicago Reading Test	N	15	8	10	13	8	6	14	73		
		$\bar{X}$	93.9	84.4	91.7	99.2	95.6	113.0	87.4		1.61	No
2.	Kuhlmann-Anderson Mental Age	N	15	8	10	13	9	6	14	75		
		$\bar{X}$	146.5	136.7	150.4	152.3	145.8	160.0	145.7		3.09	Yes
3.	Metropolitan Achievement Test	N	15	7	10	12	9	6	14	73		
		$\bar{X}$	305.1	222.4	263.0	312.4	296.0	334.6	298.6		1.82	No

taking one project, and they rise sequentially for those members in the three and 4-6 category. The mean scores drop for the members in the 7-9 cateogry, rise for those in 10-12 and drop again for the members enrolled in 13 projects and over category.

Analysis of the mean scores for the Kuhlmann-Anderson Mental Age Test produces a significant F value of 3.09 at the .05 per cent level. Subjecting the mean scores for Kuhlmann-Anderson Mental Age Test for boys at Grade VI gives an indication of the mean scores between which there are significant differences:

Order	1	2	3	4	5	6	7
Category	10-12	4-6	3	1	7-9	13 up	2
N	6	13	10	15	9	14	8
$\bar{X}$	160.0	152.3	150.4	146.5	145.8	145.7	136.7

There are no significant differences between the mean scores for mental age for those taking 4-6 or 3 projects but there is a significant difference between these categories and the remainder. There are no significant differences between those members taking 1, 7-9, or 13 projects and over, but there is a difference between this group and all others.

3. Educational Factors for Boys at Grade IX

Table XXI shows the mean scores for the standardized tests for Grade IX boys categorized on the number of projects taken.

TABLE XXI

ANALYSIS OF VARIANCE OF EDUCATIONAL FACTORS FOR GRADE XI BOYS CATEGORIZED BY NUMBERS OF 4-H PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		NUMBERS OF PROJECTS									
			1	2	3	4-6	7-9	10-12	13 up	N	F	Sig.
2.	Kuhlmann-Anderson Mental Age	N	14	8	10	13	9	6	14	74		
		$\bar{X}$	177.7	167.8	189.7	187.9	188.7	203.1	188.8		1.83	No
3.	Metropolitan Achievement Test	N	14	8	10	13	9	6	14	74		
		$\bar{X}$	310.6	279.6	319.9	332.3	322.6	383.5	305.7		1.85	No

The mean scores fluctuate with an apparent regularity throughout the table. The members enrolled in two projects have lower mean scores than those enrolled in one or three projects, and those enrolled in the 10-12 project category attain the highest mean score for both the Kuhlmann-Anderson Mental Age and the Metropolitan Achievement Test. The mean scores then decline markedly for those members taking 13 projects and over. This pattern is consistent with that exhibited by these factors for boys at Grades I and VI.

4. Summary of Educational Factors for Boys at Grades I, VI, and IX

Table XXII displays the mean scores for the standardized tests for boys at Grades I, VI, and IX.

With the exception of the Chicago Reading Test at Grade I the mean scores for those members taking two projects is lower than for those taking one project and begins to rise again for those members credited with three projects during membership tenure.

With the exception of the Kuhlmann-Anderson Mental Age Test at Grade I the highest mean score for each test appeared in the category of those taking 10-12 projects.

The decline was slight in the 13 projects and over category for the Kuhlmann-Anderson Mental Age factor at Grades I and VI, but the decline in this category was marked for the other tests in all three grades.

TABLE XXII

ANALYSIS OF VARIANCE OF EDUCATIONAL FACTORS FOR BOYS AT GRADES I, VI, AND IX CATEGORIZED BY NUMBERS OF 4-H PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	GR.	VARIABLE		NUMBERS OF PROJECTS									
				1	2	3	4-6	7-9	10-12	13 up	N	F	Sig.
1.	I	Chicago Reading Test	N	15	8	10	13	8	6	14	74		
			$\bar{X}$	33.0	34.0	32.4	26.2	30.4	36.8	36.7		.98	No
	VI		N	15	8	10	13	8	6	14	73		
			$\bar{X}$	93.9	84.4	91.7	99.2	95.6	113.0	87.3		1.61	No
2.	I	Kuhlmann-Anderson Mental Age	N	15	8	10	13	9	6	14	75		
			$\bar{X}$	85.4	84.0	87.9	86.3	86.0	86.6	86.1		.54	No
	VI		N	15	8	10	13	9	6	14	75		
			$\bar{X}$	146.5	136.7	150.4	152.3	145.8	160.0	145.7		3.09	Yes
	IX		N	14	8	10	13	9	6	14	74		
			$\bar{X}$	177.7	167.8	189.7	187.9	188.7	203.1	188.8		1.83	No
3.	I	Metropolitan Achievement Test	N	15	8	10	13	9	6	14	75		
			$\bar{X}$	98.0	92.6	104.4	95.3	90.6	123.8	102.1		1.20	No
	VI		N	15	7	10	12	9	6	14	73		
			$\bar{X}$	305.1	222.4	263.0	312.4	296.0	334.6	298.6		1.82	No
	IX		N	14	8	10	13	9	6	14	74		
			$\bar{X}$	310.6	279.6	319.9	332.3	322.6	383.5	305.7		1.85	No

5. Educational Factors for Girls at Grade I

Table XXIII deals with the educational factors for Grade I girls.

The high mean scores for the Chicago Reading Test and the Metropolitan Achievement Test were achieved by those members taking only one project. This category would include those members who dropped out of club work after only one year of membership.

Among the entire seven categories there is only a total difference of 1.4 points in the mean scores for the Kuhlmann-Anderson Mental Age factor. The mean scores fluctuate throughout the entire table but all three standard tests show a drop from the score associated with the 10-12 project category to that prevailing in the 13 projects and over category.

One significant F value of 2.72 at the .05 per cent level of significance was produced by the schooling of father factor. Using Duncan's Multiple Range Test to determine the means between which there are significant differences on schooling of father for girls, the following pattern emerges:

Order	1	2	3	4	5	6	7
Category	1	13 up	7-9	3	2	10-12	4-6
N	7	13	9	10	7	12	9
$\bar{X}$	12.1	10.9	9.5	9.2	9.1	8.9	8.7

Only those means not joined by the same line are significantly different. Hence there is a significant

TABLE XXIII

ANALYSIS OF VARIANCE OF EDUCATIONAL FACTORS FOR GRADE I GIRLS CATEGORIZED BY NUMBERS OF 4-H PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		NUMBERS OF PROJECTS									
			1	2	3	4-6	7-9	10-12	13 up	N	F	Sig.
1.	Chicago Reading Test	N	7	7	10	9	9	11	13	66		
		$\bar{X}$	46.5	40.7	42.3	42.4	42.2	44.7	42.2		.26	No
2.	Kuhlmann-Anderson Mental Age	N	7	7	10	9	9	12	13	67		
		$\bar{X}$	88.4	89.0	88.1	87.6	89.2	87.8	87.6		.09	No
3.	Metropolitan Achievement Test	N	7	7	10	9	9	12	13	67		
		$\bar{X}$	125.5	121.7	116.5	121.3	119.7	121.9	119.8		.09	No
4.	School Grade of Father	N	7	7	10	9	9	12	13	67		
		$\bar{X}$	12.1	9.1	9.2	8.7	9.5	8.9	10.9		2.72	Yes
5.	School Grade of Mother	N	7	7	10	9	9	12	13	67		
		$\bar{X}$	10.4	10.4	9.6	9.5	10.3	10.5	11.3		.72	No

difference between those members taking 1 and the 13 projects and over and between those categories and all other categories. There is no significant difference between those taking 7-9, 3, 2, 10-12, or 4-6 projects.

6. Educational Factors for Girls at Grade VI

Table XXIV delineates the mean scores for the Grade VI girls categorized according to the number of projects taken during 4-H Club tenure.

The highest mean score for the Kuhlmann-Anderson Mental Age and the Metropolitan Achievement Test occurs among those club members taking two projects. The values for the mean scores fluctuate throughout the table thereafter. They indicate, however, a similarity of pattern to that observed in Table XIII where the mean scores in the 13 projects and over category were less than those achieved by members in the 10-12 project category. The Chicago Reading Test departed from this trend by showing an increase in value for the 13 projects and over category.

7. Educational Factors for Girls at Grade IX

The mean scores for the educational factors for Grade IX girls in Table XXV show a tendency to fluctuate throughout the table but reach a high point for those members taking 10-12 projects and decline again for those members taking 13 projects and over.

The low mean score for the Kuhlmann-Anderson Mental Age factor was made by those girls taking 4-6

TABLE XXIV

ANALYSIS OF VARIANCE OF EDUCATIONAL FACTORS FOR GRADE VI GIRLS CATEGORIZED BY NUMBERS OF 4-H PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		NUMBERS OF PROJECTS									
			1	2	3	4-6	7-9	10-12	13 up	N	F	Sig.
1.	Chicago Reading Test	N	7	7	10	9	9	12	13	67		
		$\bar{X}$	111.1	105.8	107.4	92.5	102.2	102.6	104.0		1.02	No
2.	Kuhlmann-Anderson Mental Age	N	7	7	10	9	9	12	13	67		
		$\bar{X}$	156.5	160.7	157.2	154.4	155.7	159.4	156.0		.22	No
3.	Metropolitan Achievement Test	N	7	7	10	9	9	12	13	67		
		$\bar{X}$	315.7	340.5	314.3	309.7	333.2	336.5	314.0		.48	No

TABLE XXV

ANALYSIS OF VARIANCE OF EDUCATIONAL FACTORS FOR GRADE IX GIRLS CATEGORIZED BY NUMBERS OF 4-H PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		NUMBERS OF PROJECTS									
			1	2	3	4-6	7-9	10-12	13 up	N	F	Sig.
2.	Kuhlmann-Anderson Mental Age	N	7	7	10	9	9	12	13	67		
		$\bar{X}$	193.1	196.4	191.0	189.4	196.0	201.0	200.3		.36	No
3.	Metropolitan Achievement Test	N	7	7	10	9	9	12	13	67		
		$\bar{X}$	355.5	365.0	358.2	352.2	365.2	368.9	345.4		.19	No

projects and the low mean score for the Metropolitan Achievement Test was made by those members taking 13 projects and over.

8. Summary of Educational Factors for Girls at Grades I, VI, and IX

Table XXVI contains a summary of the mean scores for the educational factors for girls at Grades I, VI, and IX.

The high mean scores for the Chicago Reading Test at Grades I and VI occur among those members taking only one project.

There is a greater variation for the Kuhlmann-Anderson Mental Age factor. The high mean score for girls at Grade I occurs among those members taking 7-9 projects; at Grade VI among those girls taking two projects; at Grade IX among those girls taking 10-12 projects. Seven of the eight standardized tests administered at the three grade levels had mean scores which showed a tendency to diminish from those noted in the 10-12 project category to those noted in the 13 project and over category. The only exception occurred among those members in the 13 projects and over category who showed a slight rise in the mean score for the Chicago Reading Test at Grade VI.

9. Socio-Economic Factors for Boys at Grade I

The mean scores for the socio-economic factors for boys at Grade I are presented in Table XXVII.

TABLE XXVI

ANALYSIS OF VARIANCE OF EDUCATIONAL FACTORS FOR GIRLS AT GRADES I, VI, AND IX CATEGORIZED BY NUMBERS OF 4-H PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	GR.	VARIABLE		NUMBERS OF PROJECTS									
				1	2	3	4-6	7-9	10-12	13 up	N	F	Sig.
1.	I	Chicago Reading Test	N	7	7	10	9	9	11	13	66		
			$\bar{X}$	46.5	40.7	42.3	42.4	42.2	44.7	42.2		.26	No
	VI		N	7	7	10	9	9	12	13	67		
			$\bar{X}$	111.1	105.8	107.4	92.5	102.2	102.6	104.0		1.03	No
2.	I	Kuhlmann-Anderson Mental Age	N	7	7	10	9	9	12	13	67		
			$\bar{X}$	88.4	89.0	88.1	87.6	89.2	87.8	87.6		.09	No
	VI		N	7	7	10	9	9	12	13	67		
			$\bar{X}$	156.5	160.7	157.2	154.4	155.7	159.4	156.0		.22	No
	IX		N	7	7	10	9	9	12	13	67		
			$\bar{X}$	193.1	196.4	191.0	189.4	196.0	201.0	200.3		.36	No
3.	I	Metropolitan Achievement Test	N	7	7	10	9	9	12	13	67		
			$\bar{X}$	125.5	121.7	116.5	121.3	119.7	121.9	119.8		.09	No
	VI		N	7	7	10	9	9	12	13	67		
			$\bar{X}$	315.7	340.5	314.3	309.7	333.2	336.5	314.0		.48	No
	IX		N	7	7	10	9	9	12	13	67		
			$\bar{X}$	355.5	365.0	358.2	352.2	365.2	368.9	345.4		.19	No

The high mean scores for the number of cows owned and the size of farm are also associated with the 7-9 project category. It is reasonable to assume that the size of farm, number of cows owned, number or organizations to which parents belong, and Sewell Socio-Economic Score would all be related as the high score for all four factors is attributed to those members in the 7-9 project category.

The analysis of these data produced two F values which were greater than the figure of 2.24 required at the .05 per cent level of significance. An F value of 2.54 was obtained from the mean scores for the number of organizations to which parents belong factor, and an F value of 2.28 was obtained from the Sewell Socio-Economic Scale factor.

Applying Duncan's Multiple Range Test to the mean scores for Sewell's Socio-Economic Scale for boys at Grade I to ascertain the mean scores between which there are significant differences, the following pattern was revealed:

Order	1	2	3	4	5	6	7
Category	7-9	10-12	13 up	4-6	2	1	3
N	9	6	14	13	8	15	10
$\overline{X}$	82.5	81.8	79.3	73.6	73.0	69.9	68.7
	———	———					
		———	———				
				———	———		
					———	———	
						———	———

There are no significant differences between those means joined by the same line. There are significant

TABLE XXVII

ANALYSIS OF VARIANCE OF SOCIO-ECONOMIC FACTORS FOR GRADE I BOYS CATEGORIZED BY NUMBERS OF 4-H PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		NUMBERS OF PROJECTS									
			1	2	3	4-6	7-9	10-12	13 up	N	F	Sig.
6.	Children in Family	N	15	8	9	13	9	6	14	74		
		$\bar{X}$	3.9	2.7	3.7	4.1	4.1	3.0	2.9		1.34	No
7.	Cows Owned by Family	N	11	7	8	11	8	6	13	64		
		$\bar{X}$	4.0	3.8	4.3	4.9	6.3	3.8	5.0		1.83	No
8.	Organizations to which Parents Belong	N	15	8	9	13	9	6	14	74		
		$\bar{X}$	2.0	1.7	2.0	1.6	4.3	3.5	3.4		2.54	Yes
9.	Occupation of Father	N	13	7	9	13	8	6	13	69		
		$\bar{X}$	3.6	4.5	4.2	4.0	4.0	3.8	3.9		1.57	No
10.	Sewell Socio-Economic Score	N	15	8	10	13	9	6	14	75		
		$\bar{X}$	69.9	73.0	68.7	73.6	82.5	81.8	79.3		2.28	Yes
11.	Size of Farm	N	10	8	8	11	8	6	13	64		
		$\bar{X}$	3.4	3.0	4.5	4.0	4.7	3.0	3.6		1.92	No
12.	Tenure of Family	N	12	8	8	11	8	6	13	64		
		$\bar{X}$	1.3	1.1	1.6	1.2	1.4	1.1	1.3		.35	No

differences between those means not having a common underscoring. There is no significant difference between the mean scores for 1st and 2nd categories but there is a significant difference between these two and all others. There is no significant difference between the mean scores for 2nd and 3rd categories but there is a significant difference between these two and all others. There is no significant difference between the mean scores in 4th and 5th categories but there is a significant difference between these two and all others in the group. There is no significant difference between those means in 5th and 6th position but there is a significant difference between these and all others in the group. There is no significant difference between the mean scores in 6th and 7th position but there is a significant difference between these two and all others for the Sewell Socio-Economic Scale factor.

Applying Duncan's Multiple Range Test on the mean scores for the number of organizations to which parents belong for boys at Grade I, the pattern below was revealed:

Order	1	2	3	4	4	5	5
Category	7-9	10-12	13 up	1	3	2	4-6
N	9	6	14	15	9	8	13
$\bar{X}$	4.3	$\underline{3.5}$	$\underline{3.4}$	$\underline{2.0}$	$\underline{2.0}$	$\underline{1.8}$	$\underline{1.8}$

There is no significant difference between the means in the 7-9 and 10-12 categories and those of the other five categories. There is no significant difference between the mean scores for those members taking 1, or 3, or 2 or 4-6 projects but there is a significant difference between these four categories and the other three.

The same three categories are in first place in order of magnitude for both number of organizations and Sewell Socio-Economic Scale.

10. Socio-Economic Factors for Boys at Grade VI

Table XXVIII presents the mean scores for socio-economic factors for boys at Grade VI. There is one significant F value of 3.19 yielded by the analysis of the mean scores for the number of organizations to which parents belong. A further testing of these scores by Duncan's Multiple Range Test produced the following evidence for differences between means concerning the number of organizations to which parents belong for boys at Grade VI:

Order	1	2	3	4	4	5	6
Category	13 up	10-12	7-9	2	3	4-6	1
N	13	6	9	7	10	10	15
$\bar{X}$	5.0	4.8	4.7	2.4	2.4	2.1	1.8

There is no significant difference between the mean scores of those members enrolled in the first three categories of 13 projects and over, 10, 11, 12 projects and 7, 8, 9 projects. There is, however, a significant difference between each of the mean scores for this group

TABLE XXVIII

ANALYSIS OF VARIANCE OF SOCIO-ECONOMIC FACTORS FOR GRADE VI BOYS CATEGORIZED BY NUMBERS OF 4-H PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		NUMBERS OF PROJECTS									
			1	2	3	4-6	7-9	10-12	13 up	N	F	Sig.
6.	Children in Family	N	15	7	10	11	9	6	14	72		
		$\bar{X}$	4.8	3.8	4.2	4.2	4.5	3.5	3.6		.58	No
7.	Cows Owned by Family	N	11	6	8	8	7	6	12	58		
		$\bar{X}$	4.3	4.6	5.1	6.1	5.2	4.5	5.5		.60	No
8.	Organizations to which Parents Belong	N	15	7	10	10	9	6	13	70		
		$\bar{X}$	1.8	2.4	2.4	2.1	4.7	4.8	5.1		3.19	Yes
9.	Occupation of Father	N	14	7	10	10	9	6	14	70		
		$\bar{X}$	4.0	4.5	4.4	4.0	4.1	3.8	4.1		.78	No
10.	Sewell Socio-Economic Score	N	15	7	10	12	9	6	14	73		
		$\bar{X}$	72.6	78.1	73.4	75.9	79.5	80.8	80.9		1.42	No
11.	Size of Farm	N	11	6	8	8	7	6	12	58		
		$\bar{X}$	4.0	3.6	5.0	5.0	3.5	3.1	3.8		1.27	No
12.	Tenure of Family	N	11	6	8	9	7	5	12	58		
		$\bar{X}$	1.0	1.0	1.0	1.4	1.1	1.6	1.3		.93	No

and each of the mean scores in the last four categories. There is no significant difference between the mean scores for those members in the 2 or 3, or 4-5, or 1 project categories.

It should be noted that the same three categories - 7-9, 10-12, 13 and over - rate high although not in the same rank order for number of organizations to which parents belong, and for Sewell Socio-Economic Scale for boys as they did at Grade I (Table XXVII).

11. Socio-Economic Factors for Girls at Grade I

Table XXIX presents socio-economic factors for girls at Grade I categorized by number of 4-H projects taken.

There were more children in the families of those members who carried 4-6 projects than those in other categories, and these members had one of the lower Sewell Socio-Economic scores as well. The highest mean score for the Sewell Socio-Economic Scale was associated with those members who carried 10-12 projects and who had only 2.5 children in the family.

The high mean score for size of farm and number of cows owned by the family was shown by those members in the 7-9 projects category. It was those members who carried 13 projects and over whose parents belonged to more organizations than any other group.

The F value of 2.07 for the Sewell Socio-Economic Scale is not large enough to meet the 2.27 required for

TABLE XXIX

ANALYSIS OF VARIANCE OF SOCIO-ECONOMIC FACTORS FOR GRADE I GIRLS CATEGORIZED BY NUMBERS OF 4-H PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		NUMBERS OF PROJECTS									
			1	2	3	4-6	7-9	10-12	13 up	N	F	Sig.
6.	Children in Family	N	7	7	10	9	9	11	13	66		
		$\bar{X}$	3.7	4.2	3.9	5.7	3.6	2.4	3.3		2.83	Yes
7.	Cows Owned by Family	N	2	5	9	9	7	8	8	48		
		$\bar{X}$	4.5	3.4	4.2	4.4	6.0	5.0	4.7		.67	No
8.	Organizations to which Parents Belong	N	6	7	10	9	9	11	12	64		
		$\bar{X}$	2.0	2.5	.7	3.1	2.0	3.0	3.2		1.69	No
9.	Occupation of Father	N	6	6	10	9	9	12	12	64		
		$\bar{X}$	3.1	4.3	4.1	4.2	4.1	4.0	4.4		1.27	No
10.	Sewell Socio-Economic Score	N	7	7	10	9	9	11	13	66		
		$\bar{X}$	73.8	76.0	67.7	69.1	71.6	81.3	77.9		2.07	No
11.	Size of Farm	N	2	6	8	9	7	7	7	46		
		$\bar{X}$	3.5	3.3	2.7	4.1	4.5	3.4	3.0		.78	No
12.	Tenure of Family	N	3	6	8	9	8	8	10	52		
		$\bar{X}$	2.3	1.0	1.3	1.3	1.6	1.4	1.3		1.45	No

significance at the .05 per cent level. It is worth noting that the lowest mean score for this factor belongs to those taking three projects, the category which has the smallest farm size and the least number of organizations to which parents belong. There is a total difference of 13.7 points between the highest and lowest mean score for this factor.

An analysis of the mean scores for the number of children in the family yielded an F value of 2.83 which is significant at the .05 per cent level. When Duncan's Multiple Range Test is applied to the mean scores for number of children in the family for girls at Grade I, the following significant differences appear:

Order	1	2	3	4	5	6	7
Category	4-6	2	3	1	7-9	13 up	10-12
N	9	7	10	7	9	13	11
$\bar{X}$	5.7	4.2	3.9	3.7	3.6	3.3	2.4

The difference between the mean scores for those members who take 4-6 and two projects is not significant but the difference between these two categories and each of the other five is significant. The difference between those members taking three or one or 7-9 projects is not significant but the difference between each of these and all others in the group is significant.

12. Socio-Economic Factors for Girls at Grade VI

Table XXX presents the mean scores for the socio-economic factors for the girls at Grade VI.

TABLE XXX

ANALYSIS OF VARIANCE OF SOCIO-ECONOMIC FACTORS FOR GRADE VI GIRLS CATEGORIZED BY NUMBERS OF 4-H PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		NUMBERS OF PROJECTS									
			1	2	3	4-6	7-9	10-12	13 up	N	F	Sig.
6.	Children in Family	N	7	7	10	9	9	12	13	66		
		$\bar{X}$	4.2	5.5	4.3	5.8	3.5	2.6	4.3		3.15	Yes
7.	Cows Owned by Family	N	2	6	7	6	6	6	9	42		
		$\bar{X}$	6.0	4.5	4.8	5.1	5.6	5.6	5.8		.25	No
8.	Organizations to which Parents Belong	N	6	7	10	9	8	12	11	63		
		$\bar{X}$	3.3	4.4	2.1	2.7	2.2	4.5	4.2		1.65	No
9.	Occupation of Father	N	7	7	10	9	8	12	13	65		
		$\bar{X}$	4.0	5.1	4.2	4.6	3.6	3.5	4.3		1.69	No
10.	Sewell Socio-Economic Score	N	7	7	10	9	8	12	13	66		
		$\bar{X}$	78.2	77.8	73.1	70.2	74.1	77.6	79.0		1.01	No
11.	Size of Farm	N	2	6	8	6	6	7	10	45		
		$\bar{X}$	3.0	3.3	2.7	4.5	5.0	3.5	3.2		1.33	No
12.	Tenure of Family	N	2	6	8	6	7	7	10	46		
		$\bar{X}$	1.0	1.0	1.2	1.5	1.2	1.0	1.3		.34	No

The high mean scores for number of cows owned by those living on farms and for the Sewell Socio-Economic Scale are associated with those club members who took only one project or who enrolled in 13 projects and over.

Those members enrolled in 4-6 projects had the lowest mean score for the Sewell Socio-Economic Scale at Grade VI, and had the second lowest score for this Scale at Grade I. This category showed the most children in the family at Grade VI.

One significant F value of 3.15 was obtained when a value of 2.27 is required at the .05 per cent level. Duncan's Multiple Range Test was applied to the mean scores for number of children in the family for girls at Grade VI, with the following results:

Order	1	2	3	3	4	5	6
Category	4-6	2	13 up	3	1	7-9	10-12
N	9	7	13	10	7	9	12
$\overline{X}$	5.8	5.5	4.3	4.3	4.2	3.5	2.6

There is no significant difference between the mean scores for the members enrolled in 4-6 and two project categories but there is a significant difference between these two categories and the other five with regard to number of children in the family at Grade VI. Those members taking 4-6 projects had the highest mean score in both Grade I and Grade VI. Since the mean score of those members taking 13 projects and over, three projects or one project are the same. There is no significant difference between them. There is a significant difference between these and all others in the group.

13. Teacher Rating Factors for Boys at Grade I

Table XXXI delineates the teacher rating factors for boys at Grade I.

No significant F values at the .05 per cent level were obtained. Although analysis of the mean scores for the child's achievement in school yielded an F value of 1.55 this was not large enough to attain the 2.24 value required for significance. Those members taking three projects were given the highest rating by the teacher for child's achievement at school and the members taking 10-12 projects were rated the lowest.

For the three factors - child's achievement in school, child's emotional stability, child's home opportunities - the teacher's rating rises sequentially from the one to three project category and then declines sequentially for a low rating at the 10-12 project level.

The mean scores for the child's willingness to work fluctuate throughout the table but those members who carried 13 or more projects were rated by the teacher as being the least willing to work at Grade I.

Family's family background and family's financial status show a steadily rising evaluation by the teacher from the one to three projects category. The lowest rating

TABLE XXXI

ANALYSIS OF VARIANCE OF TEACHER RATING FACTORS FOR GRADE I BOYS CATEGORIZED BY NUMBERS OF 4-H PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		NUMBERS OF PROJECTS									
			1	2	3	4-6	7-9	10-12	13 up	N	F	Sig.
13.	Child's Achievement in School	N	15	8	10	13	9	6	14	75		
		$\bar{X}$	3.0	2.6	2.5	2.9	3.1	3.3	3.1		1.55	No
14.	Child's Emotional Stability	N	15	8	10	13	9	6	13	74		
		$\bar{X}$	3.2	3.0	2.7	3.1	3.0	3.0	3.0		.52	No
15.	Child's Home Opportunities	N	15	7	10	12	9	6	12	71		
		$\bar{X}$	3.0	2.8	2.6	3.0	3.1	3.3	3.1		.66	No
16.	Child's Willingness to Work	N	15	8	10	13	9	6	14	75		
		$\bar{X}$	2.8	2.8	2.7	2.9	2.7	3.1	3.2		.85	No
17.	Family's Educational Status	N	15	8	10	13	9	6	14	74		
		$\bar{X}$	3.0	3.1	3.0	3.0	3.4	3.1	2.8		.91	No
18.	Family's Family Background	N	14	7	10	13	9	5	14	72		
		$\bar{X}$	3.1	3.0	2.9	2.8	2.7	2.8	2.9		.34	No
19.	Family's Financial Status	N	15	8	10	13	9	6	14	75		
		$\bar{X}$	3.2	3.1	2.7	3.0	3.0	2.8	3.0		.73	No

for family's educational status was given to those members taking 7-9 projects and the highest to those members taking 13 projects and over.

14. Teacher Rating Factors for Boys at Grade VI

Table XXXII denotes the teacher rating factors for boys at Grade VI.

Those members enrolled in one, three, and 4-6 project categories were rated more highly by the teacher on child's achievement in school, child's emotional stability, child's home opportunities, and child's willingness to work than were those taking two projects. Those members taking 10-12 projects received the highest rating on child's achievement in school corroborating the evidence for boys at Grade VI in Table XX.

The members enrolled in the 4-6 project category were rated by the teacher as being most willing to work at Grade VI level and those in the 7-9 project category were rated as the least willing to work and those taking 13 projects and over still showed the reluctance to work revealed at Grade I. (Table XXXI)

The highest rating for the family's educational status was given for those members enrolled in 10-12 projects. This group also had the high mean score for schooling of father and schooling of mother as recorded in Table XIX. The low rating for family's educational status and family's family background was given to those taking three projects.

TABLE XXXII

ANALYSIS OF VARIANCE OF TEACHER RATING FACTORS FOR GRADE VI BOYS CATEGORIZED BY NUMBERS OF 4-H PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		NUMBERS OF PROJECTS									
			1	2	3	4-6	7-9	10-12	13 up	N	F	Sig.
13.	Child's Achievement in School	N	15	8	10	13	9	6	14	75		
		$\bar{X}$	2.7	3.2	2.5	2.6	2.7	2.1	3.0		1.61	No
14.	Child's Emotional Stability	N	15	8	10	13	9	6	14	75		
		$\bar{X}$	2.6	3.0	2.7	2.6	2.5	2.8	2.6		.34	No
15.	Child's Home Opportunities	N	15	8	10	13	9	6	14	75		
		$\bar{X}$	3.0	3.2	2.6	2.8	2.6	2.6	2.7		.85	No
16.	Child's Willingness to Work	N	15	8	10	13	9	6	14	75		
		$\bar{X}$	2.6	2.6	2.6	2.2	3.0	2.5	2.7		.69	No
17.	Family's Educational Status	N	15	8	10	13	9	6	12	72		
		$\bar{X}$	3.1	3.0	3.5	3.0	2.8	2.5	2.8		1.96	No
18.	Family's Family Background	N	14	8	10	13	9	6	14	74		
		$\bar{X}$	3.1	3.0	3.7	2.6	2.7	2.8	2.7		.93	No
19.	Family Financial Status	N	15	8	10	13	9	6	14	75		
		$\bar{X}$	2.9	3.3	2.8	2.9	2.8	2.6	2.7		.89	No

15. Teacher Rating Factors for Girls at Grade I

Table XXXIII details the mean scores for teacher rating factors for girls at Grade I and the analysis produced no significant F values.

Those members taking two or three or 13 projects and over were rated by the teacher as being highest in child's achievement in school. The members in the 4-6 and 10-12 project categories were given the lowest rating on child's home opportunities. These two categories were also rated the lowest in the teacher's rating on family's financial status. Child's emotional stability was also rated low for the members in the 4-6 category and it is reasonable to assume that all the factors discussed in this paragraph are interrelated.

16. Teacher Rating Factors for Girls at Grade VI

Table XXXIV contains the mean scores for the teacher rating factors for girls at Grade VI.

The girls enrolled in two and 10-12 projects were rated by the teacher as excelling in child's achievement in school and these findings are supported by the mean scores for Kuhlmann-Anderson Mental Age and Metropolitan Achievement Test for girls at Grade VI in Table XXIV. Further confirmation on the standards of achievement for girls in these two categories is found in Table XXV of educational factors for girls at Grade IX.

TABLE XXXIII

ANALYSIS OF VARIANCE OF TEACHER RATING FACTORS FOR GRADE I GIRLS CATEGORIZED BY NUMBERS OF 4-H PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		NUMBERS OF PROJECTS									
			1	2	3	4-6	7-9	10-12	13 up	N	F	Sig.
13.	Child's Achievement in School	N	7	7	10	9	9	11	12	65		
		$\bar{X}$	2.5	2.2	2.3	3.0	2.5	2.8	2.3		.61	No
14.	Child's Emotional Stability	N	7	7	10	9	9	11	12	65		
		$\bar{X}$	2.8	2.8	3.1	3.1	2.5	3.0	2.6		.65	No
15.	Child's Home Opportunities	N	7	7	10	9	9	10	11	63		
		$\bar{X}$	2.5	2.5	3.0	3.1	2.5	3.2	2.6		1.08	No
16.	Child's Willingness to Work	N	7	7	10	9	9	11	12	65		
		$\bar{X}$	2.4	2.4	2.5	2.8	2.3	2.7	2.2		.39	No
17.	Family's Educational Status	N	7	7	10	9	9	12	12	66		
		$\bar{X}$	3.0	3.1	3.1	3.0	3.2	3.1	3.0		.33	No
18.	Family's Family Background	N	7	7	10	8	9	12	11	64		
		$\bar{X}$	3.0	3.0	3.0	3.0	2.7	3.0	3.0		.73	No
19.	Family's Financial Status	N	7	7	10	9	9	12	13	67		
		$\bar{X}$	3.1	2.7	3.0	3.3	3.0	3.3	2.9		1.06	No

TABLE XXXIV

ANALYSIS OF VARIANCE OF TEACHER RATING FACTORS FOR GRADE VI GIRLS CATEGORIZED BY NUMBERS OF 4-H PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		NUMBERS OF PROJECTS									
			1	2	3	4-6	7-9	10-12	13 up	N	F	Sig.
13.	Child's Achievement in School	N	7	7	10	9	9	12	13	67		
		$\bar{X}$	2.7	2.0	2.2	3.0	2.6	2.0	2.1		1.17	No
14.	Child's Emotional Stability	N	7	7	10	9	9	12	13	67		
		$\bar{X}$	3.0	2.2	2.6	2.6	3.1	2.4	2.4		1.24	No
15.	Child's Home Opportunities	N	7	7	10	9	9	12	13	67		
		$\bar{X}$	2.7	2.5	2.3	3.1	2.7	2.2	2.6		1.43	No
16.	Child's Willingness to Work	N	7	7	10	9	9	12	13	67		
		$\bar{X}$	2.2	2.0	2.0	2.3	2.4	2.0	2.0		.50	No
17.	Family's Educational Status	N	7	7	10	9	9	12	12	66		
		$\bar{X}$	2.7	2.8	3.0	3.1	2.8	2.7	2.8		.51	No
18.	Family's Family Background	N	7	7	10	9	9	12	12	66		
		$\bar{X}$	2.7	3.0	3.0	2.8	2.8	2.5	2.6		1.09	No
19.	Family's Financial Status	N	7	7	10	9	9	12	12	66		
		$\bar{X}$	2.5	3.2	3.2	3.2	3.2	2.7	3.1		1.77	No

The child's home opportunities were rated most highly for those members in the 10-12 category also.

The highest appraisal by the teacher for willingness of the child to work was shared by those members taking two or three or 10-12 or 13 projects and over. High ratings by the teacher for child's home opportunities were also given to the girls in these four categories.

Family's educational status was given the highest rating in the category for members taking only one project. As seen in Table XXXIII, this group had the high mean score for schooling of father, which supports the teacher's rating for family's educational status at Grade VI.

Summary of Hypothesis$_2$

On the basis of the findings of the analysis of data the hypothesis that there is no difference in the educational and socio-economic background of youngsters selecting different numbers of projects is rejected.

Analysis of Hypothesis$_3$

Hypothesis$_3$--There is no difference in the educational and socio-economic backgrounds of youngsters participating in different levels of project progression.

Tables XXXV through L provide data for boys and girls at Grades I, VI, and IX related to the levels of project progression in which they engaged during their tenure of 4-H Club membership. Four levels of progression were identified for use throughout the following analysis for Hypothesis$_3$.

1. Educational Factors for Boys at Grade I

Table XXXV illustrates a pattern of regular fluctuation for mean scores of educational factors for boys at Grade I.

Categorized by levels of progression, the high mean score for all five factors occurs at the level described as over half of possible progression but less than total. The low mean score occurs at the level described as progression each year to the maximum. The consistency of this trend throughout the table would encourage one to conjecture that the high achievers in school do not stay in 4-H Club work for the maximum period.

The two significant F values produced by the analysis of the data are 3.67 for both the Chicago Reading

TABLE XXXV

ANALYSIS OF VARIANCE OF EDUCATIONAL FACTORS FOR GRADE I BOYS CATEGORIZED BY LEVELS OF PROGRESSION OF 4-H PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		LEVELS OF PROGRESSION						
			No Prog.	Some Prog.	Over Half Prog.	Maximum Prog.	N	F	Sig.
1.	Chicago Reading Test	N	36	19	8	10	73		
		$\bar{X}$	32.1	31.8	41.5	27.7		3.67	Yes
2.	Kuhlmann-Anderson Mental Age	N	36	20	8	10	74		
		$\bar{X}$	86.5	85.8	87.1	83.9		1.06	No
3.	Metropolitan Achievement Test	N	36	20	8	10	74		
		$\bar{X}$	99.8	103.9	116.0	77.0		3.67	Yes
4.	School Grade of Father	N	36	20	8	10	74		
		$\bar{X}$	8.9	9.5	10.2	8.8		1.58	No
5.	School Grade of Mother	N	36	20	8	10	74		
		$\bar{X}$	9.9	10.7	11.5	10.7		.90	No

Test and the Metropolitan Achievement Test, with 2.74 required for significance at the .05 per cent level. Applying Duncan's Multiple Range Test for the differences between means to the mean scores for Chicago Reading Test for boys at Grade I, the following results were obtained:

Order	1	2	3	4
Category	Over Half	None	Some	Maximum
N	8	36	19	10
$\bar{X}$	41.5	32.1	31.8	27.7

This test indicates that there are no significant differences between the mean scores for those members showing some progression and no progression but that there is a significant difference between each of these two levels and each of those showing over half progression and the maximum.

Applying Duncan's Multiple Range Test to the mean scores for the Metropolitan Achievement Test for boys at Grade I, the following results were obtained:

Order	1	2	3	4
Category	Over Half	Some	None	Maximum
N	8	20	36	10
$\bar{X}$	116.0	103.9	99.8	77.0

There is a significant difference between the mean score for those showing over half of the level of progression and those showing some, none, or maximum, but there is no significant difference between those showing some and none.

2. Educational Factors for Boys at Grade VI

Table XXXVI deals with the mean scores for the standardized tests for boys at Grade VI.

Although no significant F values were obtained upon analysis of the data the same general pattern of achievement prevailed as was observed in Table XXXV.

The high mean score for the Chicago Reading Test was obtained by those members showing some progression but less than half, and the low mean score was obtained by those members showing progression each year to the maximum.

The high mean score for the Kuhlmann-Anderson Mental Age was obtained by those showing some progression but less than half and the low mean score was obtained by those showing progression each year to the maximum.

The high mean score for the Metropolitan Achievement Test was shown by those showing over half progression but less than total. The low mean score, as for the other two tests, is provided by those members showing progression each year to the maximum.

The prevailing pattern, supported by a similar one, in Table XXXV, showing the members with maximum progression to be low achievers suggests that the boys with high scholastic ability do not remain in 4-H Club work for the maximum period.

TABLE XXXVI

ANALYSIS OF VARIANCE OF EDUCATIONAL FACTORS FOR GRADE VI BOYS CATEGORIZED BY LEVELS OF PROGRESSION OF 4-H PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		LEVELS OF PROGRESSION						
			No Prog.	Some Prog.	Over Half Prog.	Maximum Prog.	N	F	Sig.
1.	Chicago Reading Test	N	36	19	8	9	72		
		$\bar{X}$	93.1	99.7	91.7	86.6		.69	No
2.	Kuhlmann-Anderson Mental Age	N	36	20	8	10	74		
		$\bar{X}$	147.2	150.7	148.5	144.5		.48	No
3.	Metropolitan Achievement Test	N	34	20	8	10	72		
		$\bar{X}$	293.1	297.8	328.0	267.0		1.15	No

3. Educational Factors for Boys at Grade IX

Table XXXVII presents the mean scores for the educational factors for Grade IX boys.

The mean scores for the Kuhlmann-Anderson Mental Age rise consistently from a low of 183.5 for those showing no progression but have a potential for some progression to a high of 192.8 for those showing half of possible progression but less than total.

The high mean score for the Metropolitan Achievement Test was obtained by those showing some progression but less than half of potential and the low mean score was obtained by those showing progression each year to the maximum.

4. Summary for Educational Factors for Boys at Grade I, VI, and IX

Table XXXVIII summarizes the educational factors for the boys at Grades I, VI, and IX.

The most striking feature of this table is the regular and marked decline in the value of the mean score for those boys who progress each year to the maximum from that obtained by those boys who show over half the progression but less than the total. The reader is asked to note that the mean scores for those boys showing progression each year to the maximum is the low mean score for the eight sets of distributions presented.

In five instances the high mean score for the eight standardized tests was achieved by those boys showing

TABLE XXXVII

ANALYSIS OF VARIANCE OF EDUCATIONAL FACTORS FOR GRADE IX BOYS CATEGORIZED BY LEVELS OF PROGRESSION OF 4-H PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		LEVELS OF PROGRESSION						
			No Prog.	Some Prog.	Over Half Prog.	Maximum Prog.	N	F	Sig.
2.	Kuhlmann-Anderson Mental Age	N	35	20	8	10	73		
		$\bar{X}$	183.5	189.6	192.7	179.5		.68	No
3.	Metropolitan Achievement Test	N	35	20	8	10	73		
		$\bar{X}$	315.5	333.3	308.7	302.6		.41	No

TABLE XXXVIII

ANALYSIS OF VARIANCE OF EDUCATIONAL FACTORS FOR BOYS AT GRADES I, VI, AND IX CATEGORIZED BY LEVELS OF PROGRESSION OF 4-H PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	GR.	VARIABLE		LEVELS OF PROGRESSION						
				No Prog.	Some Prog.	Over Half Prog.	Maximum Prog.	N	F	Sig.
1.	I	Chicago Reading Test	N	36	19	8	10	73		
			$\bar{X}$	32.1	31.8	41.5	27.7		3.67	Yes
	VI		N	36	19	8	9	72		
			$\bar{X}$	93.1	97.7	91.7	86.6		.70	No
2.	I	Kuhlmann-Anderson Mental Age	N	36	20	8	10	74		
			$\bar{X}$	86.5	85.8	87.1	83.9		1.06	No
	VI		N	36	20	8	10	74		
			$\bar{X}$	147.2	150.7	148.5	144.5		.48	No
	IX		N	35	20	8	10	73		
			$\bar{X}$	183.5	189.6	192.7	179.5		.68	No
3.	I	Metropolitan Achievement Test	N	36	20	8	10	74		
			$\bar{X}$	99.8	103.9	116.0	77.0		3.67	Yes
	VI		N	34	20	8	10	72		
			$\bar{X}$	293.1	297.8	328.0	267.0		1.15	No
	IX		N	35	20	8	10	73		
			$\bar{X}$	315.5	333.3	308.7	302.6		.41	No

over half progression but less than total and in three instances the high mean score was achieved by those boys showing some progression but less than half.

The two significant F values occurred for the Chicago Reading Test at Grade I and the Metropolitan Achievement Test at Grade I. Duncan's Multiple Range Test revealed no differences between the means for those scores belonging to the members with some and over half progression, but significance between them and those means for boys showing no progression and the maximum. There was also significant difference between those boys showing no progression and those showing progression to the maximum.

There is a noteworthy F value of 1.06 for the Kuhlmann-Anderson Mental Age at Grade I and the F value of 1.15 for the Metropolitan Achievement Test at Grade VI, but these values do not meet the 2.74 required for significance at the .05 per cent level.

5. Educational Factors for Grade I Girls

Table XXXIX portrays no specific pattern for the educational factors for Grade I girls. The mean scores fluctuate throughout the various categories in the table, with the high mean score for the Chicago Reading Test and the Metropolitan Achievement Test being associated with those girls who showed progression each year to the maximum.

The high mean score for the Kuhlmann-Anderson Mental Age was obtained by those girls showing over half

TABLE XXXIX

ANALYSIS OF VARIANCE OF EDUCATIONAL FACTORS FOR GRADE I GIRLS CATEGORIZED BY LEVELS OF PROGRESSION OF 4-H PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		LEVELS OF PROGRESSION						
			No Prog.	Some Prog.	Over Half Prog.	Maximum Prog.	N	F	Sig.
1.	Chicago Reading Test	N	21	21	6	18	66		
		$\bar{X}$	42.9	40.8	38.5	47.0		1.37	No
2.	Kuhlmann-Anderson Mental Age	N	21	21	6	19	67		
		$\bar{X}$	87.5	86.7	90.6	89.2		2.07	No
3.	Metropolitan Achievement Test	N	21	21	6	19	67		
		$\bar{X}$	121.5	115.0	116.3	127.3		.60	No
4.	School Grade of Father	N	21	21	6	19	67		
		$\bar{X}$	10.4	8.6	10.0	10.2		1.55	No
5.	School Grade of Mother	N	21	21	6	19	67		
		$\bar{X}$	10.4	10.3	10.1	10.3		.03	No

progression but less than total, with only a difference of 1.4 points between this score and that achieved by the girls who progressed each year to the maximum. The F value yielded by this factor was 2.07, but it was not sufficiently large to meet the value of 2.76 required for significance at the .05 per cent level.

The high mean scores for schooling of mother and schooling of father were associated with those girls showing no progression and showing progression each year to the maximum.

6. Educational Factors for Girls at Grade VI

The educational factors for Grade VI girls in Table XL yield no significant F values at the .05 per cent level. The Kuhlmann-Anderson Mental Age Test yielded the highest F value in Table XL as it did in Table XXXVIII, but was not large enough to meet the 2.76 needed for a .05 per cent level of significance. The high mean score for the Kuhlmann-Anderson Mental Age was obtained by those members showing over half progression but less than total, followed next by those showing progression each year to the maximum.

The high mean score for the Chicago Reading Test was obtained by those members showing no progression and the next highest by those members showing over half progression but less than total. There was only a difference of .4 between those showing over half progression and

TABLE XL

ANALYSIS OF VARIANCE OF EDUCATIONAL FACTORS FOR GRADE VI GIRLS CATEGORIZED BY LEVELS OF PROGRESSION OF 4-H PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		LEVELS OF PROGRESSION						
			No Prog.	Some Prog.	Over Half Prog.	Maximum Prog.	N	F	Sig.
1.	Chicago Reading Test	N	21	21	6	19	67		
		$\bar{X}$	107.4	97.0	105.6	105.3		.94	No
2.	Kuhlmann-Anderson Mental Age	N	21	21	6	19	67		
		$\bar{X}$	156.4	153.8	164.6	159.1		1.52	No
3.	Metropolitan Achievement Test	N	21	21	6	19	67		
		$\bar{X}$	332.4	310.3	333.2	337.0		.40	No

those showing progression each year to the maximum for this factor.

The high mean score for the Metropolitan Achievement Test was achieved by those girls showing progression each year to the maximum. The next highest score was obtained by those members showing over half of progression but less than total. There was only a difference of .8 between this score and the one achieved by the members showing no progression.

7. Educational Factors for Girls at Grade IX

There are no significant F values in the Table XLI on educational factors for girls at Grade IX, but the largest F value of 1.5 was again produced by the Kuhlmann-Anderson Mental Age Test as it was at Grade I and Grade VI.

The high mean score for the Metropolitan Achievement Test was obtained by those members showing progression each year to the maximum, and the second highest mean score was obtained by those girls showing over half of progression but less than total. This development was consistent with that shown in the mean scores for the Kuhlmann-Anderson Mental Age Test.

8. Summary of Educational Factors for Girls at Grades I, VI, and IX.

Table XLII summarizes the educational factors for girls at Grades I, VI, and IX.

TABLE XLI

ANALYSIS OF VARIANCE OF EDUCATIONAL FACTORS FOR GRADE IX GIRLS CATEGORIZED BY LEVELS OF PROGRESSION OF 4-H PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		LEVELS OF PROGRESSION						
			No Prog.	Some Prog.	Over Half Prog.	Maximum Prog.	N	F	Sig.
2.	Kuhlmann-Anderson Mental Age	N	21	21	6	19	67		
		$\bar{X}$	191.7	191.9	206.6	201.4		1.5	No
3.	Metropolitan Achievement Test	N	21	21	6	19	67		
		$\bar{X}$	355.5	350.0	361.0	368.3		.02	No

TABLE XLII

ANALYSIS OF VARIANCE OF EDUCATIONAL FACTORS FOR GIRLS AT GRADES I, VI, AND IX CATEGORIZED BY LEVELS OF PROGRESSION OF 4-H PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	GR.	VARIABLE		LEVELS OF PROGRESSION						
				No Prog.	Some Prog.	Over Half Prog.	Maximum Prog.	N	F	Sig.
1.	I	Chicago Reading Test	N	21	21	6	18	66		
			$\bar{X}$	42.9	40.8	38.5	47.0		1.38	No
	VI		N	21	21	6	19	67		
			$\bar{X}$	107.4	97.0	105.6	105.3		.94	No
2.	I	Kuhlmann-Anderson Mental Age	N	21	21	6	19	67		
			$\bar{X}$	87.5	86.7	90.6	89.2		2.07	No
	VI		N	21	21	6	19	67		
			$\bar{X}$	156.4	153.8	164.6	159.1		1.52	No
	IX		N	21	21	6	19	67		
			$\bar{X}$	191.7	191.9	206.6	201.4		1.50	No
3.	I	Metropolitan Achievement Test	N	21	21	6	19	67		
			$\bar{X}$	121.5	115.0	116.3	127.3		.60	No
	VI		N	21	21	6	19	67		
			$\bar{X}$	332.3	310.2	333.1	337.0		.40	No
	IX		N	21	21	6	19	67		
			$\bar{X}$	355.5	350.9	361.0	368.3		.02	No

Seven of the eight sets of test scores presented show their low mean score with those girls who showed some progression but less than half of the potential. The one exception occurred with the Kuhlmann-Anderson Mental Age at Grade IX, and then there was only .1 difference between the mean score for the lowest mean score which was associated with those girls who showed no progression and those who showed some but less than half.

The high mean score for the Chicago Reading Test at Grade I was obtained by those girls showing progression each year to the maximum and at Grade VI by those showing no progression.

The high mean score for the Kuhlmann-Anderson Mental Age was gained by those girls who showed over half progression but less than total at Grades I, VI, and IX, and the second highest mean score was achieved by those showing progression to the maximum.

The high mean score for the Metropolitan Achievement Test was obtained by those girls showing progression each year to the maximum at Grades I, VI, and IX, and the second highest scores were obtained by those showing some progression but less than half for all three grades.

9. Socio-Economic Factors for Boys at Grade I

Table XLIII deals with the socio-economic factors for boys at Grade I categorized by levels of project progression attained.

TABLE XLIII

ANALYSIS OF VARIANCE OF SOCIO-ECONOMIC FACTORS FOR GRADE I BOYS CATEGORIZED BY LEVELS OF PROGRESSION OF 4-H PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		LEVELS OF PROGRESSION						
			No Prog.	Some Prog.	Over Half Prog.	Maximum Prog.	N	F	Sig.
6.	Children in Family	N	36	19	8	10	73		
		$\bar{X}$	3.6	3.4	3.6	3.4		.10	No
7.	Cows Owned by Family	N	29	18	6	10	63		
		$\bar{X}$	4.3	4.7	4.6	5.7		.94	No
8.	Organizations to which Parents Belong	N	36	19	8	10	73		
		$\bar{X}$	2.2	2.2	3.6	2.7		.85	No
9.	Occupation of Father	N	34	18	7	10	69		
		$\bar{X}$	4.0	3.8	3.8	4.0		.22	No
10.	Sewell Socio-Economic Score	N	36	20	8	10	74		
		$\bar{X}$	71.4	77.2	78.8	80.7		1.47	No
11.	Size of Farm	N	30	17	6	10	63		
		$\bar{X}$	3.8	3.4	4.0	4.1		.43	No
12.	Tenure of Family	N	31	17	6	10	64		
		$\bar{X}$	1.3	1.4	1.1	1.3		.16	No

No significant F values at the .05 per cent level were produced. The Sewell Socio-Economic Scale produced the largest F value of 1.47 but this was not large enough for the 2.76 needed to indicate significance. The high mean score for this factor was obtained by those members showing progression each year to the maximum, and the low mean score by those showing no progression. There was only a difference of 1.6 between the mean scores for those boys who showed some progression but less than half and those boys who showed more than half progression but less than total.

A similar trend was noted for the number of cows owned by those living on farms as those members showing progression each year to the maximum owned the most cows and those showing no progression owned the least number of cows.

The highest mean score for the size of farm was given to those members who showed progression each year to the maximum. There would appear, therefore, to be a relationship between Sewell Socio-Economic Scale, number of cows owned and the size of the farm.

The highest mean score for the number of organizations to which parents belong was given to those members showing over half but less than total progression.

10. Socio-Economic Factors for Boys at Grade VI

Table XLIV involves the analysis of the mean scores for the socio-economic factors for boys at Grade VI categorized on the levels of project progression.

The low mean score for the Sewell Socio-Economic Scale was shown by the boys with no progression, and may be related to the number of organizations and the smaller number of cows owned for this category. Likewise, the high mean score for the Sewell Socio-Economic Scale associated with those showing over half progression may be related to the high mean score for the number of organizations for the same category.

The high mean score for the number of cows owned belonged to those members showing progression each year to the maximum as it did in Table XLIII for boys at Grade I.

The only significant F value is produced by the number of organizations to which parents belong, and the high mean for this factor appears at the level described as over half of progression but less than total. Applying Duncan's Multiple Range Test to the mean scores for the number or organizations to which parents belong for boys at Grade VI, the following significances appear:

Order	1	2	3	4
Category	Over Half	Maximum	Some	None
N	7	9	19	34
$\overline{X}$	5.5	3.6	3.5	2.5

TABLE XLIV

ANALYSIS OF VARIANCE OF SOCIO-ECONOMIC FACTORS FOR GRADE VI BOYS CATEGORIZED BY LEVELS OF PROGRESSION OF 4-H PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		LEVELS OF PROGRESSION						
			No Prog.	Some Prog.	Over Half Prog.	Maximum Prog.	N	F	Sig.
6.	Children in Family	N	34	19	8	10	71		
		$\bar{X}$	4.4	3.8	4.0	4.1		.19	No
7.	Cows Owned by Family	N	28	15	6	8	57		
		$\bar{X}$	4.8	5.2	5.5	5.7		.32	No
8.	Organizations to which Parents Belong	N	34	19	7	9	69		
		$\bar{X}$	2.5	3.5	5.5	3.6		2.72	Yes
9.	Occupation of Father	N	34	19	7	9	69		
		$\bar{X}$	4.1	4.2	4.0	4.0		.21	No
10.	Sewell Socio-Economic Score	N	35	19	8	10	72		
		$\bar{X}$	74.2	78.3	82.0	79.3		1.65	No
11.	Size of Farm	N	28	15	6	8	57		
		$\bar{X}$	4.4	3.9	4.5	3.6		.42	No
12.	Tenure of Family	N	28	15	6	8	48		
		$\bar{X}$	1.0	1.5	1.5	1.1		1.61	No

There is a significant difference between those members who show over half progression and the other three categories. There is no significant difference between those boys who showed progression each year to the maximum and those who showed some progression but less than half. There is significance, however, in the differences between those with maximum progression and none, as well as some progression and none.

11. Socio-Economic Factors for Girls at Grade I

Table XLV depicts the mean scores for the socio-economic factors for girls at Grade I.

The largest F value in the table is produced by analysis of the mean scores of occupation of father but the resulting 2.43 is not large enough for the 2.76 needed to indicate significance at the .05 per cent level. The score of 3.5 for this factor associated with those members who showed over half progression indicates a tendency toward clerical or skilled labor, and the mean score of 4.6 for those who showed progression each year to the maximum indicates a tendency to be farm based occupations.

The high mean score for the Sewell Socio-Economic Scale belonged to the girls showing progression each year to the maximum, and the lowest mean score to those showing some progression but less than half.

The highest mean score for the number of cows owned by those living on farms belonged to those showing

TABLE XLV

ANALYSIS OF VARIANCE OF SOCIO-ECONOMIC FACTORS FOR GRADE I GIRLS CATEGORIZED BY LEVELS OF PROGRESSION OF 4-H PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		LEVELS OF PROGRESSION						
			No Prog.	Some Prog.	Over Half Prog.	Maximum Prog.	N	F	Sig.
6.	Children in Family	N	21	20	6	19	66		
		$\bar{X}$	4.0	4.2	3.6	3.0		.95	No
7.	Cows Owned by Family	N	14	18	4	12	48		
		$\bar{X}$	4.0	4.7	6.0	4.7		1.16	No
8.	Organizations to which Parents Belong	N	20	20	6	18	64		
		$\bar{X}$	2.4	2.3	2.3	2.6		.05	No
9.	Occupation of Father	N	19	21	6	18	64		
		$\bar{X}$	3.8	4.0	3.5	4.6		2.43	No
10.	Sewell Socio-Economic Score	N	21	20	6	19	66		
		$\bar{X}$	73.7	72.3	75.3	76.5		.35	No
11.	Size of Farm	N	14	18	4	11	47		
		$\bar{X}$	3.5	3.5	3.7	3.5		.03	No
12.	Tenure of Family	N	14	19	5	14	52		
		$\bar{X}$	1.4	1.4	1.2	1.4		.18	No

over half progression but less than total, and this category possessed the second highest mean score for the Sewell Socio-Economic Scale in this table.

12. Socio-Economic Factors for Girls at Grade VI

Table XLVI deals with the socio-economic factors for girls at Grade VI.

The highest F values of 1.8 for occupation of father and 1.3 for number of children in the family are not large enough to reach the value of 2.76 required for significance at the .05 per cent level.

A relationship is indicated between the number of organizations to which parents belong and the Sewell Socio-Economic Scale. The low mean score for both these factors is produced by those girls showing some progression but less than half and the high mean score for both factors is produced by those girls showing over half progression but less than total. There is only a difference of .2 for number of organizations to which parents belong, and a difference of 1.9 for Sewell Socio-Economic Scale between those girls showing maximum progression and those girls showing none, with the larger mean score being associated with those members who show no progression.

The higher mean score for the number of cows owned is associated with those members who show some progression but less than half, but the high mean score for the size of farm is associated with those girls showing over half progression but less than total.

TABLE XLVI

ANALYSIS OF VARIANCE OF SOCIO-ECONOMIC FACTORS FOR GRADE VI GIRLS CATEGORIZED BY LEVELS OF PROGRESSION OF 4-H PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		LEVELS OF PROGRESSION						
			No Prog.	Some Prog.	Over Half Prog.	Maximum Prog.	N	F	Sig.
6.	Children in Family	N	21	21	5	19	66		
		$\bar{X}$	4.6	4.6	3.4	3.5		1.28	No
7.	Cows Owned by Family	N	12	17	3	10	42		
		$\bar{X}$	5.1	5.5	5.0	5.4		.07	No
8.	Organizations to which Parents Belong	N	20	21	5	17	63		
		$\bar{X}$	3.7	2.8	4.4	3.5		.74	No
9.	Occupation of Father	N	20	21	5	19	65		
		$\bar{X}$	4.3	4.0	3.2	4.3		1.75	No
10.	Sewell Socio-Economic Score	N	21	21	5	19	66		
		$\bar{X}$	77.3	73.9	79.4	75.4		.64	No
11.	Size of Farm	N	13	17	3	12	45		
		$\bar{X}$	3.4	3.6	4.6	3.4		.84	No
12.	Tenure of Family	N	13	17	4	12	46		
		$\bar{X}$	1.1	1.2	1.5	1.1		.40	No

13. Teacher Rating Factors for Boys at Grade I

Table XLVII deals with the teacher rating factors for boys at Grade I.

The teacher's low rating on child achievement was given to those boys who showed over half progression but less than total. The highest rating for this factor was given to those boys who showed no progression.

The child's home opportunities were rated least for those boys who showed maximum progression and greatest for those who showed no progression.

The child's willingness to work was rated the lowest for those members showing over half progression but less than total and highest for those boys showing some progression or none at all. The F value of 3.31 was larger than the required value of 2.76 required for significance at the .05 per cent level. Applying Duncan's Multiple Range Test for the differences between means to the mean scores for teacher's rating on child's willingness to work for boys at Grade I, the following pattern emerges:

Order	1	2	3	4
Category	Over Half	Maximum	None	Some
N	8	10	36	20
$\bar{X}$	3.6	3.1	2.8	2.7

This test reveals that there is a significant difference between those boys who show over half progression but less than total and the boys in the other three

TABLE XLVII

ANALYSIS OF VARIANCE OF TEACHER RATING FACTORS FOR GRADE I BOYS CATEGORIZED BY LEVELS OF PROGRESSION OF 4-H PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		LEVELS OF PROGRESSION						
			No Prog.	Some Prog.	Over Half Prog.	Maximum Prog.	N	F	Sig.
13.	Child's Achievement in School	N	36	20	8	10	74		
		$\bar{X}$	2.8	3.0	3.2	3.0		.67	No
14.	Child's Emotional Stability	N	36	20	8	9	73		
		$\bar{X}$	3.1	3.0	3.0	2.7		.52	No
15.	Child's Home Opportunities	N	35	20	6	9	70		
		$\bar{X}$	2.8	3.1	3.0	3.3		.58	No
16.	Child's Willingness to Work	N	36	20	8	10	74		
		$\bar{X}$	2.8	2.7	3.6	3.1		3.31	Yes
17.	Family's Educational Status	N	36	20	8	9	73		
		$\bar{X}$	3.1	3.0	2.8	3.1		.50	No
18.	Family's Family Background	N	34	19	8	10	71		
		$\bar{X}$	3.0	2.7	2.8	2.8		.50	No
19.	Family's Financial Status	N	36	20	8	10	74		
		$\bar{X}$	3.0	2.9	3.2	3.1		.65	No

categories. It also shows that there is a significant difference between those boys with maximum progression and those in the other three categories. There is no significant difference between those showing some progress and no progress.

From this evidence it is reasonable to conclude that those boys who showed little progression were more willing to work at Grade I than those who showed the most progression.

14. Teacher Rating Factors for Boys at Grade VI

Table XLVIII presents the teacher rating factors for boys at Grade VI. The largest F value of 2.37 was yielded by family's educational status but was not sufficiently large to meet the 2.76 value required for significance at the .05 per cent level. The lowest ratings given by the teacher on this factor are associated with those boys who showed most progression and the least progression. This evaluation is supported by the lower mean scores for the schooling of father and mother in Table XXXV which are also associated with these categories.

The lowest rating for the child's achievement in school was given to those showing maximum progression. This evaluation is consistent with that indicated by the standardized tests in Table XXXVIII in which those who showed the most progression had the lowest mean scores.

TABLE XLVIII

ANALYSIS OF VARIANCE OF TEACHER RATING FACTORS FOR GRADE VI BOYS CATEGORIZED BY LEVELS OF PROGRESSION OF 4-H PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		LEVELS OF PROGRESSION						
			No Prog.	Some Prog.	Over Half Prog.	Maximum Prog.	N	F	Sig.
13.	Child's Achievement in School	N	36	20	8	10	74		
		$\bar{X}$	2.5	2.9	3.0	3.1		.93	No
14.	Child's Emotional Stability	N	36	20	8	10	74		
		$\bar{X}$	2.6	2.9	2.5	2.8		.76	No
15.	Child's Home Opportunities	N	36	20	8	10	74		
		$\bar{X}$	2.8	2.8	2.6	3.0		.47	No
16.	Child's Willingness to Work	N	36	20	8	10	74		
		$\bar{X}$	2.4	2.7	2.6	3.1		1.41	No
17.	Family's Educational Status	N	36	19	7	9	71		
		$\bar{X}$	3.1	3.0	2.5	3.1		2.37	No
18.	Family's Family Background	N	35	20	8	10	73		
		$\bar{X}$	2.8	2.8	2.7	2.9		.17	No
19.	Family's Financial Status	N	36	20	8	10	74		
		$\bar{X}$	3.0	2.8	2.7	2.7		.50	No

Child's home opportunities and child's willingness to work at Grade VI were also rated the least for those who showed the maximum progression.

15. Teacher Rating Factors for Girls at Grade I

Table XLIX shows the mean scores for the teacher rating factors for girls at Grade I.

The two largest F values were produced by the child's emotional stability (F of 1.9) and child's willingness to work (F of 1.2) but these did not meet the value of 2.76 required for significance at the .05 per cent level. Although not substantiated by the analysis on Table XLII where educational factors for girls are summarized, the teacher rating at Grade I indicates the girls showing the most progression are least likely to achieve.

Likewise, the girls showing the most progression at Grade I are rated by the teacher as least willing to work.

16. Teacher Rating Factors for Girls at Grade VI

Table L deals with the teacher rating factors for girls at Grade VI.

Child's achievement in school, child's emotional stability, child's willingness to work are rated by the teacher as being the highest for those showing maximum progression. Child's home opportunities is rated most highly for those showing over half and maximum progression.

TABLE XLIX

ANALYSIS OF VARIANCE OF TEACHER RATING FACTORS FOR GRADE I GIRLS CATEGORIZED BY LEVELS OF PROGRESSION OF 4-H PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		LEVELS OF PROGRESSION						
			No Prog.	Some Prog.	Over Half Prog.	Maximum Prog.	N	F	Sig.
13.	Child's Achievement in School	N	20	21	6	18	65		
		$\overline{X}$	2.5	2.4	2.5	2.7		.01	No
14.	Child's Emotional Stability	N	20	21	6	18	65		
		$\overline{X}$	2.8	3.0	2.3	3.0		1.92	No
15.	Child's Home Opportunities	N	20	21	6	16	63		
		$\overline{X}$	2.7	2.9	2.6	2.8		.26	No
16.	Child's Willingness to Work	N	20	21	6	18	65		
		$\overline{X}$	2.5	2.4	2.0	2.7		1.21	No
17.	Family's Educational Status	N	20	21	6	19	66		
		$\overline{X}$	3.1	3.0	3.0	3.1		.17	No
18.	Family's Family Background	N	20	21	6	17	64		
		$\overline{X}$	3.0	3.0	2.8	3.0		.90	No
19.	Family's Financial Status	N	21	21	6	19	67		
		$\overline{X}$	3.0	3.0	3.1	3.0		.08	No

TABLE L

ANALYSIS OF VARIANCE OF TEACHER RATING FACTORS FOR GRADE VI GIRLS CATEGORIZED BY LEVELS OF PROGRESSION OF 4-H PROJECTS TAKEN DURING 4-H CLUB TENURE

NO.	VARIABLE		LEVELS OF PROGRESSION						
			No Prog.	Some Prog.	Over Half Prog.	Maximum Prog.	N	F	Sig.
13.	Child's Achievement in School	N	21	21	6	19	67		
		$\bar{X}$	2.2	2.5	2.6	2.1		.60	No
14.	Child's Emotional Stability	N	21	21	6	19	67		
		$\bar{X}$	2.7	2.7	2.8	2.3		1.0	No
15.	Child's Home Opportunities	N	21	21	6	19	67		
		$\bar{X}$	2.5	2.7	2.5	2.5		.19	No
16.	Child's Willingness to Work	N	21	21	6	19	67		
		$\bar{X}$	2.2	2.2	2.0	1.8		.67	No
17.	Family's Educational Status	N	21	21	6	18	66		
		$\bar{X}$	2.8	3.0	2.6	2.8		.76	No
18.	Family's Family Background	N	21	21	6	19	67		
		$\bar{X}$	2.5	2.9	2.5	2.6		1.95	No
19.	Family's Financial Status	N	21	21	6	19	67		
		$\bar{X}$	3.0	3.2	2.8	3.0		.84	No

Summary of Hypothesis$_3$

On the basis of the findings in the analysis of these data the hypothesis that there is no difference in the educational and socio-economic backgrounds of youngsters attaining different levels of progression is rejected.

CHAPTER V

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

This study is part of the longitudinal study inaugurated at The University of Wisconsin in 1949 to study the affects of school district reorganization on the educational performance of students. The 4-H dimension of this study was developed in 1954. This study is the eighth 4-H study emerging from the main research project. This particular problem deals with data from ten selected Wisconsin communities and centers on the relationship between kinds, numbers, and levels of progression of 4-H projects selected by 4-H Club members and their educational and socio-economic backgrounds.

The study sample consists of 75 boys and 67 girls who have had 4-H experience in these ten communities. The data were collected by means of eleven instruments already in use in the study and by designing an additional one in the form of a 4-H project record. The data were punched onto IBM cards, programmed for and processed by the 1604 computer in the Numerical Analysis Laboratory at The University of Wisconsin.

The one way analysis of variance for unequal numbers in each cell was used by employing Scheffe's Error Term to make full use of the data in this situation.

Significant F values were further tested by applying Duncan's Multiple Range Test for unequal replications to the means of those factors indicating significance.

The three hypotheses to be tested were:

Hypothesis$_1$--There is no difference in educational and socio-economic backgrounds of the 4-H members selecting different kinds of 4-H projects during their menbership tenure.

Hypothesis$_2$--There is no difference in the educational and socio-economic backgrounds of 4-H Club members selecting different numbers of projects during tenure of 4-H membership.

Hypothesis$_3$--There is no difference in the educational and socio-economic backgrounds of 4-H Club members attaining different levels of project progression.

Summary of Findings Regarding Hypothesis$_1$

On the basis of evidence from this study the null hypothesis that there is no difference in the educational and socio-economic backgrounds of 4-H members selecting different kinds of 4-H projects.

Significant Differences

1. There were significant differences among boys at Grade I for the number of cows owned by those living on farms.

2. There were significant differences for boys at Grade VI on the number of children in the family. A tendency toward significance shown at Grade I became an actuality at Grade VI. The sheep project members had the highest mean score for the number of children in the family and the lowest mean score for this factor at Grade VI was shown by the woodworking project members.

3. There were significant differences for boys at Grade VI on teacher's rating of the family's financial status. The teacher rated the electrical project members the highest and the garden project members the lowest on this factor.

4. There were significant differences for the highest school grade attained by girls' mothers. The highest mean score was shown by the members of the livestock project. Only a slight difference existed between food and clothing projects.

5. There were significant differences for girls at Grade I for number of organizations to which parents belong. The high mean score was shown by parents of the livestock project with only slight differences between the members of the food and clothing projects. Although not emerging as significant at the Grade VI level, the tendency was still marked.

6. There were significant differences for the number of cows owned by those living on farms for girls

at Grade VI. The highest mean score for number of cows owned was shown by the livestock club members at both Grade I and Grade VI.

No Significance

High mean scores for standardized tests for boys at Grade I were dispersed between garden, dairy, and sheep project members and at Grade VI between garden and electrical project members but there were no significant differences at Grades I, VI, or IX for these factors.

Neither were there any significant differences for number of children in the family nor occupation of father for boys at Grade I.

Consistencies Noted

With the exception of the Metropolitan Achievement Test in Grade VI the girls in the clothing project ranked high on standardized tests and the girl livestock members ranked low. Among the girls at Grades I and VI there were considerable differences in the mean scores between the livestock project members and the clothing and food project members. At Grade IX the difference between the livestock members and the clothing members was very small for both the Kuhlmann-Anderson Mental Age Test and the Metropolitan Achievement Test.

Summary of Findings Regarding Hypothesis$_2$

On the basis of the evidence of this study the null hypothesis that there is no difference in the educational and socio-economic backgrounds of 4-H Club members selecting different numbers of projects is rejected.

Significant Differences

1. There are significant differences for boys as to the schooling of their mothers. The high mean score was shown by those members taking 10-12 projects, and the low mean scores by those members taking one and three projects.

2. There were significant differences for the boys at Grade I in number or organizations to which parents belong. The high mean score was shown by those members in the 7-9 projects category and the low mean score by those in the one and 4-6 categories.

3. There were significant differences in the Sewell Socio-Economic Scale among boys at Grade I. The high mean score was shown by the members in the 7-9 project category, and the low mean score by those in the one and three project categories.

4. There were significant differences in the Kuhlmann-Anderson Mental Age Test for boys at Grade VI. The high mean score was achieved by boys in the 10-12 projects category - a situation continued at Grade IX.

The low mean score for this factor was obtained by those members taking two projects at Grades I, VI, and IX.

5. There were significant differences in the number of organizations to which parents belong among boys at Grade VI. The high mean score was obtained by those boys taking 13 projects and over and the lowest by those members taking one project.

6. There were significant differences in the number of children in the family for girls at Grade I and Grade VI. The high mean score in both instances was obtained by those members taking 7-9 projects and the low mean score in both instances by those taking 10-12 projects.

7. There were significant differences among girls as to the schooling of their father. High mean score was obtained by those girls taking one project, and the low mean score by those taking 4-6 projects.

No Differences

There was only a small difference in the mean scores for Kuhlmann-Anderson Mental Age at Grade I for either the boys or the girls according to number of projects taken.

There was very little difference in the tenure status of the family at either Grade I or Grade VI for both boys and girls - the tendency being toward ownership of farm.

There was less difference in the mean scores for the occupation of father of boys at Grade VI than at Grade I.

There was very little difference in the teacher ratings for boys on child's emotional stability and family's family background at both Grade I and Grade VI.

Consistencies Noted

There is a tendency throughout the analysis of data on the second hypothesis for the high mean scores and high teacher ratings to be associated with those taking 7-9 or 10-12 projects. This pattern is more clearly defined among the boys than among the girls. In data for both boys and girls there is a tendency for a distinct decline from the value prevailing at the 10-12 project level to that evident at the next level of 13 projects or over.

Summary of Findings Regarding Hypothesis$_3$

On the basis of the evidence of the study the null hypothesis that there is no difference in the educational and socio-economic backgrounds of 4-H members participating in different levels of project progression is rejected.

Significant Differences

1. There is a significant difference in the mean scores on the Chicago Reading Test for boys at Grade I. The high mean score was obtained by those boys showing

over half progression but less than total, and the low mean score by those showing progression each year to the maximum.

2. There was a significant difference in the mean scores for the Metropolitan Achievement Test for boys at Grade I. The high mean score was obtained by those boys showing over half progression but less than total and the low mean score by those boys showing progression each year to the maximum.

3. There was a significant difference for boys at Grade I in the teacher's rating on child's willingness to work at Grade I. The high rating was obtained by those boys showing some progression but less than half, and the low rating by those who showed over half but less than total.

4. There were significant differences in the number of organizations to which parents belong for boys at Grade VI, the high mean score being obtained by those boys showing over half progression but less than total and the low mean score to those showing no progression.

Consistencies Noted

There was a certain regularity of pattern noticeable among the data presented for the boys but no similar pattern materialized among the data for the girls.

The low mean score for standardized tests for boys at Grades I, VI, and IX occurred at the level of progression each year to the maximum. In each case this figure was a decrease from the mean score shown at the preceding level of over half progression but less than total. For seven of the eight standardized tests the highest or second highest mean score was obtained by those showing half progression but less than total.

The only similar tendency shown by the girls for standardized tests appeared for Kuhlmann-Anderson Mental Age Test which showed mean scores for maximum progression slightly less than those for over half progression for Grades I, VI, and IX. The high mean score for the Metropolitan Achievement Test was produced by those girls showing progression each year to the maximum. The low mean score for the standardized tests for girls was obtained in seven of the eight instances by those girls showing some progression but less than half of potential.

The high mean score for the Sewell Socio-Economic Scale at boys' Grade I is associated with maximum progression, as is the high mean score for number of cows owned and the second highest mean score for number of organizations to which parents belong. This stability reflects the bias inherent in the study which features those study subjects residing in their communities from Grade I level.

At Grade VI the high mean score for Sewell Socio-Economic Scale is produced by those boys showing over half progression but less than total, as is the high mean score for number of organizations to which parents belong and the second highest mean score for the number of cows owned.

The relationship between the Sewell Socio-Economic Scale and the number of organizations to which parents belong, and the number of cows owned by those living on farms, is not so direct, but high and second high mean scores for these factors tend to be associated with the same categories of project progression for Grades I and VI.

Child's achievement in school at Grade I and Grade VI was given a lower rating by the teacher for boys showing maximum progression. This position was supported by the evidence of low mean scores in standardized tests for those boys showing maximum progression in Table XXXVIII. The child's home opportunities were rated by the teacher to be least for those boys showing maximum 4-H project progression in both Grades I and VI. At Grade I the teacher rated those boys showing over half progression as least willing to work, with those showing maximum progression ranking next. At Grade VI the teacher rated those who showed maximum progression as least willing to work and those with some progression as being next.

Those girls showing maximum progression were rated by the teacher at Grade I as being least willing to work, but at Grade VI they were rated as being the most willing to work.

TABLE XLI

TABLE OF SIGNIFICANCE FOR BOYS AND GIRLS AT GRADES I AND VI FOR EACH HYPOTHESIS

VARIABLES		BOYS						GIRLS					
	GRADES	I			VI			I			VI		
		H_1	H_2	H_3	H_1	H_2	H_3	H_1	H_2	H_3	H_1	H_2	H_3
Educational													
1.	Chicago Reading Test	no	no	yes	no	no*	no	no	no	no*	no	no*	no
2.	Kuhlmann-Anderson Mental Age	no	no	no*	no	yes	no*	no*	no	no	no	no	no*
3.	Metropolitan Achievement Test	no*	no*	yes	no	no*	no*	no*	no	no*	no	no	no
4.	No. Years School of Father	no*	no	no*	--	--	--	no	yes	no*	--	--	--
5.	No. Years School of Mother	no*	yes	no	--	--	--	yes	no	no	--	--	--
Socio-Economic													
6.	Number of Children	no	no*	no	yes	no	no	no	yes	no	no	yes	no*
7.	Number of Dairy Cows	yes	no*	no	no*	no	no	no*	no	no*	yes	no	no
8.	Number of Organizations	no*	yes	no*	no*	yes	yes	yes	no*	no	no*	no*	no
9.	Occupation of Father	no	no*	no	no*	no	no	no	no*	no*	no	no*	no*
10.	Sewell Socio-Economic Score	no*	yes	no*	no	no*	no*	no*	no*	no	no*	no*	no
11.	Size of Farm	no*	no*	no	no	no*	no	no	no	no	no	no	no
12.	Tenancy of Farm	no*	no	no	no*	no	no*	no	no*	no	no	no	no
Teacher Rating													
13.	Child's Achievement	no	no*	no	no*	no*	no	no	no	no	no	no*	no
14.	Child's Emotional Stability	no	no	no	no	no	no	no	no	no*	no*	no*	no*
15.	Child's Home Opportunities	no	no	no	no	no	no	no	no*	no	no	no*	no
16.	Child's Willingness to Work	no	no	yes	no	no*	no	no	no	no*	no*	no	no
17.	Family's Educational Status	no	no	no	no	no*	no*	no	no	no	no	no	no
18.	Family's Family Background	no	no	no	no	no	no	no	no	no	no	no*	no*
19.	Family's Financial Status	no	no	no	yes	no	no	no	no*	no	no	no*	no

* Means that the F value obtained is only slightly below the F value required for significance at the .05 per cent level.

The teacher rating for the family's educational status rates those boys with no progression and maximum progression as being the lowest at both Grade I and Grade VI. There appears to be consistency with schooling of boys' father in Table XXXV where the low mean scores for this factor were obtained by those with no progression and maximum progression. Those indicating no progression also showed the low mean score for mother's schooling.

The teacher rating for family's financial status for boys at Grade I in Table XLVII and Sewell Socio-Economic Scale in Table XLIII did not appear congruent, but they showed congruency at Grade VI with high teacher ratings and high mean scores coinciding for those boys showing over half or maximum progression.

Conclusions

Several conclusions can be made on the basis of the findings of this study regarding the relationship between kinds, numbers, and levels of progression of 4-H projects and the educational and socio-economic background of 4-H Club members in the ten selected communities and in similar situations. The conclusions are most applicable to those communities in Wisconsin which are similar to the ten communities studied.

1. Those boys who cared for dairy, electrical, and woodworking projects have a higher socio-economic status than the boys in

sheep and garden projects. Therefore the kinds of projects selected by 4-H Club members may be determined by the money which their families can afford to invest in the project material. According to the author's observation, dairy projects tend to favor purebred animals. If these animals are bought from other breeders either with a view to obtaining a potential competition winner, or with a view to introducing new blood lines into the herd, they represent a considerable outlay of cash. If dairy projects are available through natural reproduction of the members' home herd this means that those dairy members who live on farms having purebred herds actually represent a higher economic stratum in the rural community because of the goods and chattels involved in a successful dairy enterprise.

Electrical projects would reflect a similar economic situation. If the electrical members live on farms deriving their chief income from dairying, this project is a natural adjunct to the dairy enterprise as much of the equipment necessary for modern dairying practices is electrical in nature. If there is no relation in this study between dairying and electrical projects, the fact that electrication was part of the farming enterprise indicates a higher level of living.

2. Tenure status favoring ownership of farm holdings would indicate a relationship between this factor and the bias in the study toward those who are long term residents in the community. It also shows that 4-H is selective in its membership in that the 4-H families come from those people who show the stability of ownership in the community, and does not lean heavily toward those members whose families have a less secure form of land tenure. This finding supports the conclusion that 4-H members represent a more affluent section of rural society.
3. There are more children in the families whose youngsters take sheep projects than in those who take dairy projects. This finding, along with the evidence of lower socio-economic rating for the sheep projects, would indicate that the sheep project required less initial cash investment and was therefore within the means of the lower income groups in the community.

4. The teacher rates the dairy, electrical, and woodworking club members as having more home opportunities. This finding is a natural outcome of the finding that these projects represented a higher socio-economic status.
5. The girls have higher achievement scores for the standardized tests at Grades I, VI, and IX than do the boys. This development indicates that the girls who are in 4-H Clubs are more successful scholars than the boys in 4-H work. It would also suggest that the high achievers among the boys may be engaged in some other youth activity rather than 4-H, and may imply that the 4-H program does not meet the developmental task needs of the consistently high academic achiever among the boys.
6. The differences in the scores for the standardized tests among the girls are small at Grades I and VI, but the girls in the livestock project have the lower score in each instance. The gap was narrowed at Grade IX. One can speculate as to whether or not the girls in livestock judging projects found the unique oral and writing experiences which are an integral part of livestock judging activities to be a stimulation to improved performance

in the classroom. It would also lead one to inquire about the nature of the schools which these girls attended at the elementary level.

7. The girls in the livestock projects are apt to have a higher socio-economic score than the girls in the clothing and food clubs. This finding indicates that the livestock projects are apt to be associated with those girls who represent a more favored segment of rural society. As many of them take dairy projects it would support the findings for the boys that dairy project members come from a section of the rural community which has a higher level of living. It may also indicate that these girls have a more adequate supply of those personal and social and material amenities supplied by home economics activities. Therefore these girls lack the economic and personal motivation to seek them through 4-H work. It would also lead one to ask about the labor pattern on their farms and whether responsibilities for farm chores was a conditioning factor toward membership in livestock projects.
8. The 4-H members who take the greatest number of projects are apt to be lower achievers in

school than those who take fewer projects. Since this evidence is present for the boys as well as the girls it would appear that the high achievers do not stay in 4-H work long enough to take the maximum number of projects. This situation may also result from the necessity of taking several 4-H projects each year in order to make up a large total of project work. Such a responsibility may require so much attention that it interferes with the time required for superior academic achievement.

9. The high socio-economic score for the boys taking the greater number of projects indicates that those who stay in 4-H Club work longer represent a more prosperous segment of the community. The same trend is present among the girls but is not so markedly supported by the data. This situation may arise because those students with a higher level of living may be able to set and maintain standards of dress and mobility not possible for lower socio-economic groups.
10. The boys who show maximum progression are poorer achievers in school than those who stay in 4-H Club work long enough to show only less than half or over half progression.

This situation is not so marked for the girls and would suggest that disparities in the nature of the project between agriculture and home economics have some bearing on this development. It has been the author's experience that home economics programs for girls, en toto, are much less production oriented than are the agricultural programs for the boys. This broader program may attract, or produce, a higher achiever than does the narrower confines of the agricultural project.

The tendency of the low achievers to be associated with maximum number of projects and the maximum amount of progression in the 4-H program would lead one to question the wisdom of encouraging long periods of membership in the present 4-H program. Is maximum tenure of membership sought for its own sake rather than for the increased learning experience? Is 4-H membership regarded as prestigeful?

The tendency of members to originate, in greater numbers, among those members of the rural community with a higher level of living would lead one to assume that the 4-H objective of improving the living conditions of rural people is not being adequately met, as this finding indicates that the program is reaching mainly those whose living standard is already high.

The data implies that the high achievers deliberately leave the program early and this course of action leads one to seek the motive. The reader is reminded that the study subjects are those who have remained in one community throughout their membership tenure, so initial and terminal points were not effected by in- or out-migration. The reader is also reminded that one of the companion studies[1] to this thesis concluded that members dropped 4-H membership because, in their estimation, the program was weak. Lack of parent interest was also a factor. Did those who remained in the program also find that the program was weak? If they did, why did they remain in the program? Was it because they were competition oriented? Do those members who win the greatest number of awards in 4-H work out-last rather than out-win their competitors? If these long-term members did not believe that the 4-H program was weak were they less perceptive than those who believed that it could have been improved? If the long-term members believed that their needs were being met by the 4-H program were their aspirations and expectations different from those who desired change in the program?

---

[1] Burton W. Kreitlow, Lowell Pierce, and Curtis Middleton, Who Joins 4-H Clubs? (Research Bulletin 215, Madison, University of Wisconsin, October, 1959).

Does parent interest in the program have any relation to the socio-economic status of the family? Do poorer families believe that the cost of the project, or of that project which brings the most glamorous awards, is beyond their means? Do members and parents have inadequate knowledge about the objectives of 4-H work as indicated by Brownell, and therefore drop from the program, because the quality of their agricultural projects cannot, in their opinion, compete with those of the competition-oriented members?

Some further questions regarding the type of boys who retain the longest 4-H membership might be:

Are they the students who are also FFA members? Are they students who are being encouraged by the teacher to remain in farming because they are low achievers in school? Do the high achievers believe that they have succeeded in deriving the most from the program at some point less than maximum tenure and therefore seek to meet their social needs elsewhere?

The inference may be that the 4-H program should be revised to concentrate on membership and program for boys and girls between the ages of ten and sixteen years, and cease encouraging membership for the latter teen-age years.

Long-term membership may be pictured by the young members as a tedious repitition of former projects and programs and may account for the lack of vitality sensed by short-term members.

Is there too much concentration on the star performer in 4-H Club work and minor emphasis on an entire club effort? Does this realization lead highly energetic achievers in school to look for their satisfactions in other youthful endeavors than 4-H? If change in the 4-H program is indicated as necessary does the traditional framework of the organization prohibit any adjustment, and hence discourage those individuals who as high achievers in the classroom, anticipate more rapid progressions from their activities than they can foresee as a 4-H Club member?

These and other questions could be answered by more depth research into the nature of the 4-H program and the kinds of boys and girls who are its members.

Additional Areas for Research in 4-H Club Work

On the basis of this research it would seem necessary to:

Conduct some research into the relationship between drop-outs to the kinds and numbers of 4-H projects.

Extend this study using Grade XII data.

Relate the variables used in this study to awards and to Junior Leadership activities.

Investigate the kinds of organizations to which parents of 4-H members belong and to which parents of non-4-H members belong.

Relate sense of personal worth variables to those who become Junior Leaders and to those who do not perform this function.

Investigate the intercorrelation of kinds of projects with progression of projects.

APPENDIX I

RECORD OF 4-H PROJECTS IN LONGITUDINAL STUDY OF SCHOOL DISTRICT REORGANIZATION * 1952-1962

I. SPECIAL ACHIEVEMENT

STUDY COMMUNITY ____________________
MEMBER NO. __________ Name ____________
PARENT'S NAME ____________________
PARENT'S ADDRESS ____________________

II. PROJECT RECORD	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962
1. BEEF											
Steer or heifer											
Beef cows (2 or more)											
Beef for market (3 or more)											
2. DAIRY											
Jr. or Sr. heifer calf											
Jr. or Sr. yearling heifer											
Two year old or cow											
Two or more cows - prod.											
Herd Management											
Jr. or Sr. bull calf											
Additional activities											
Insect control of herd											
Roughage production											
Quality milk production											
Using dairy produc. records											
3. POULTRY											
Raising poultry for eggs											
Raising poultry for meat											
4. SHEEP											
Ewe and lamb											
Farm flock											
Market lamb											
5. SWINE											
Breeding gilt or m'k't barrow											
Sow and litter											
Herd											
6. LIGHT HORSES AND PONIES											
7. RABBITS											

4-H: L.S.S.D.R, Jan. 26, 1962/E. L.

PROJECT	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962
8. DOGS											
9. CROPS, GARDEN AND YARD											
Small grains, corn or forage											
Part I: five crop practices											
Part II: eight urop practices											
Part III: five A. crop & five activ.											
Part IV: five A. crop & eight activ.											
Part V: grow farm acrea. & 5 activ.											
Tobacco: one-quarter acre											
10. FRUIT											
Strawberries for home use											
Strawberries for local sale											
Advanced - 500 plants or more											
11. HOME GARDEN											
Part I											
Part II											
Part III											
Part IV											
Market Garden											
12. HOME GROUNDS IMPROVEMENT											
Beginners											
Advanced											
13. HOUSE PLANTS											
Part I											
Part II											
14. CONSERVATION AND NATURE											
Insect Study											
Beginner											
Advanced											
Bees											
Beginners											
Bee management											
Forestry											
Forestcrafter											
Woodsampler											
Timber Cruiser											
Woods Manager											
Tree propagator											
Forest sugar maker											

3

PROJECT	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962
Nature Conservation											
Odd numbered years											
Even numbered years											
Soil Conservation											
Wildlife Management											
Part I: Farm game											
Part II: Farm Fur Management											
Part III: Songbirds											
Part IV: Fish management											
Part V: Wild flower study											
Part VI: Wild flower garden											
15. ARTS AND CRAFTS PROJECTS											
Basketry											
Hand stenciling											
Leather work											
Part I: Beginner											
Part II: Helper											
Part III: Craftsman											
Metal Enameling											
Block Printing											
Part I: Beginning											
Part II: Advanced											
Silk Screening											
Photography											
Part I: Your Camera											
Part II: Better Camera											
16. AUTOMOTIVE											
Unit A.											
Unit B.											
Unit C.											
Electricity											
Flexible Elec. cords											
Using Elec. safely											
Home & yard											
Elec. home											

PROJECT	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962
Mechanics											
Part A											
Part B											
Part C											
Part D											
17. WOODWORKING											
Part I											
Part II											
Part III											
18. HOME AND FAMILY PROJECTS											
Clothing											
Part I											
Part II											
Part III											
Part IV											
Food and Nutrition											
It's fun to cook											
Advanced											
Foods-Freezing (12-13)											
Foods-Freezing (14 and over)											
Home Furnishings											
The home I live in (10-12)											
Room of my own (14 & over)											
Child Care											
Part I (10-12)											
Part II (12 and over)											
A											
B											
C											
D											
E											
19. JUNIOR LEADERSHIP											

4-H: L.S.S.D.R. Jan. 26/1962, E.L.

APPENDIX II

CODE FOR ANALYSIS OF 4-H PROJECTS AND SELECTED EDUCATIONAL AND SOCIO-ECONOMIC FACTORS IN ORIGINAL L.S.S.D.R.

COLUMN	DESCRIPTION FOR DECK #1
1.	Deck number
2-6.	Student Identification
7.	Sex - 1: boy, 2: girl
8-9.	Chicago Reading Score - Grade I
10-12.	Chicago Reading Score - Grade VI
13-15.	Chicago Reading Rate - Grade VI
16-17.	Chronological Age - Grade I
18-20.	Chronological Age - Grade VI
21-23.	Chronological Age - Grade IX
24-25.	Kuhlmann-Anderson Mental Age - Grade I
26-28.	Kuhlmann-Anderson Mental Age - Grade VI
29-31.	Kuhlmann-Anderson Mental Age - Grade IX
32-34.	Kuhlmann-Anderson I.Q. - Grade I
35-37.	Kuhlmann-Anderson I.Q. - Grade VI
38-40.	Kuhlmann-Anderson I.Q. - Grade IX
41-43.	Metropolitan Achievement Score - Grade I
44-46.	Metropolitan Achievement Score - Grade VI
47-49.	Metropolitan Achievement Score - Grade IX
50.	Number of children in family at child's Grade I
51.	Number of children in family at child's Grade VI
52.	Number of cows owned by those living on farms at child's Grade I
53.	Number of cows owned by those living on farms at child's Grade VI
	Code for cows: 1: none 2: 1-5 3: 6-10 4: 11-15 5: 16-20 6: 21-25 7: 26-30 8: 31-35 9: 36 or more
54.	Number of organizations to which parents belong at child's Grade I
55.	Number of organizations to which parents belong at child's Grade VI
56-57.	Number of 4-H projects taken during child's club tenure
58.	Number of 4-H project types taken during child's 4-H club tenure
59.	Number of 4-H awards beyond county level
60.	Number of years in 4-H Junior Leadership
61.	Number of years in 4-H Club work
62.	Occupation of father at child's Grade I
63.	Occupation of father at child's Grade VI

Code for father's occupation:

1: professional
2: semi-professional
3: clerical, skilled, or retail
4: farm
5: semi-skilled
6: slightly skilled
7: day laborer
8: blank or father dead

64-65. Schooling of father
66-67. Schooling of mother
68-69. Sewell Socio-Economic Scale Grade I
70-71. Sewell Socio-Economic Scale Grade VI
72. Size of farm at child's Grade I
73. Size of farm at child's Grade VI

Code for farm size:

1: 1-40 acres
2: 41-80 acres
3: 81-120 acres
4: 121-160 acres
5: 161-200 acres
6: 201-240 acres
7: 241-280 acres
8: 281-320 acres
9: 321 plus

74. Status of farm tenure at child's Grade I
75. Status of farm tenure at child's Grade VI

Code for status of tenure

1: owner
2: renter
3: laborer
4: owner-renter
5: other

Deck 2

COLUMN	DESCRIPTION
1	DECK NUMBER 2
2 - 6	Student identification
7	Sex - 1: boy, 2: girl
8	Teacher Rating Factors
8	Child's Achievement in school - Grade I
9	Child's achievement in school - Grade VI
10	Child's emotional stability - Grade I
11	Child's emotional stability - Grade VI
12	Child's home opportunities - Grade I
13	Child's home opportunities - Grade VI
14	Child's mental ability - Grade I
15	Child's mental ability - Grade VI
16	Child's social qualities - Grade I
17	Child's social qualities - Grade VI
18	Child's willingness to work - Grade I
19	Child's willingness to work - Grade VI
20	Family's ability in their work - Grade I
21	Family's ability in their work - Grade VI
22	Family's educational standards - Grade I
23	Family's educational standards - Grade VI
24	Family's family background - Grade I
25	Family's family background - Grade VI
26	Family's financial status - Grade I
27	Family's financial status - Grade VI
28	Family's moral and ethical standards - Grade I
29	Family's moral and ethical standards - Grade VI
30	Family's social status - Grade I
31	Family's social standards - Grade VI
32	Family's special skills Art, Handiwork, Music - Grade I
33	Family's special skills - Grade VI
34	Family's status or prestige in community - Grade I
35	Family's status or prestige - Grade VI
36	Family's work with the church - Grade I
37	Family's work with the church - Grade VI

KINDS OF PROJECTS

Column

38 1. Automotive
2. Beef
3. Bees
4. Block printing
5. Child care
6. Clothing
7. Crops
8. Dairy
9. Dogs

39 1. electricity
2. food
3. forestry
4. fruit
5. home furnishings
6. home garden
7. home ground improvement
8. horses
9. house plants

40 1. insect
2. leatherwork
3. mechanics
4. nature study
5. photography
6. poultry
7. rabbits
8. sheep
9. swine

41 1. soil conservation
2. wildlife
3. woodworking

42 COMPLETION OF PROJECTS
0. no completions
1. some projects completed
2. all projects completed

43 PROGRESSION OF PROJECTS
0. no progression, but potential exists for some
1. no progression, but no potential for progression
2. half or less of possible progression
3. over half of possible progression but less than total
4. progression each year to the maximum

44-45 Number of 4-H Projects taken by student during Club tenure

46 Number of 4-H Project types during 4-H Club tenure

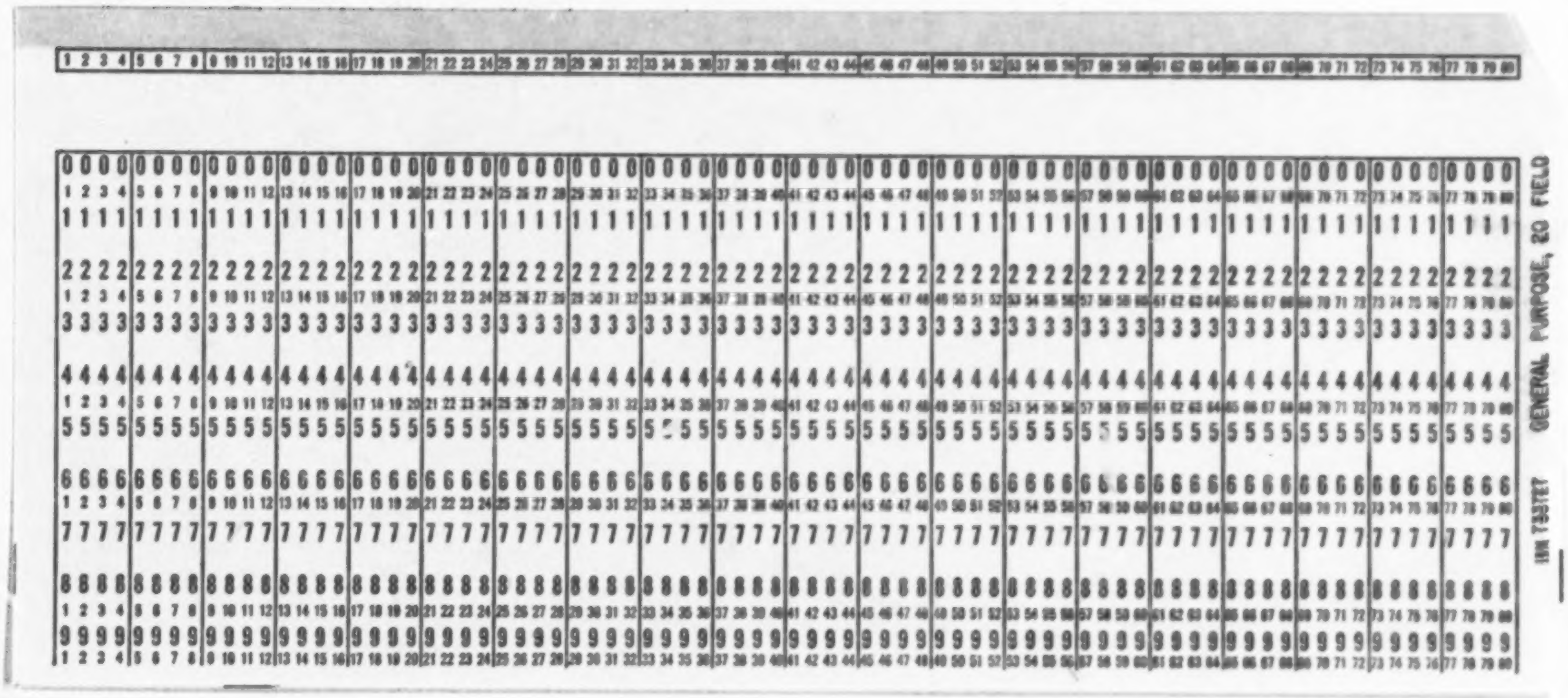
47 Number of 4-H Awards beyond county level

48 Number of years in 4-H Junior Leadership

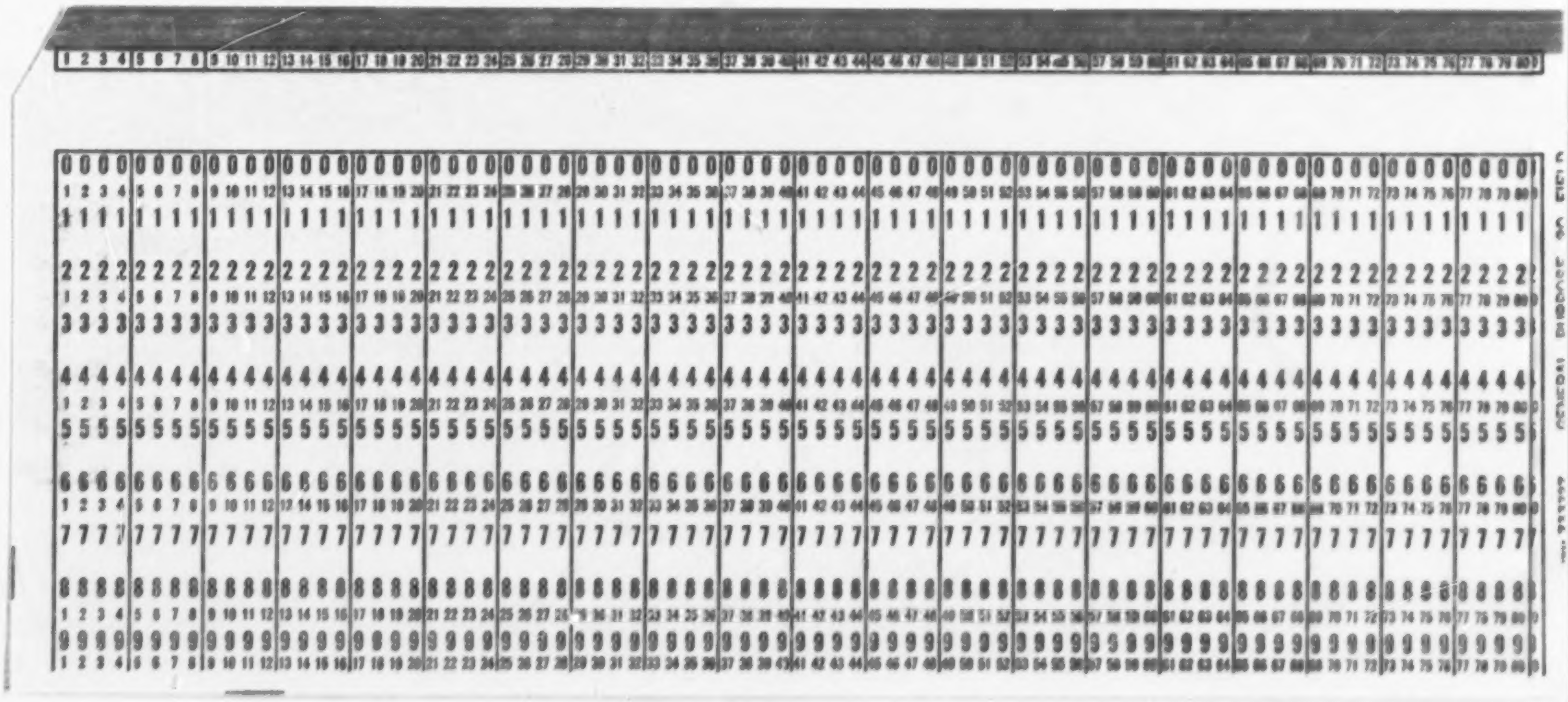
49 Number of years in 4-H work

APPENDIX III

BOYS


GENERAL PURPOSE, 20 FIELD

GIRLS



APPENDIX IV

Analysis of Variance for

Grade ______________________________

Sex ______________________________

Variable ______________________________

Source of Variation	Sum of Squares	d. f.	Mean Square	F	F. Required .05
Between groups					
Within groups					

The error mean square suggested by Scheffé:

$$E = \frac{K.S}{d.f.}$$

$$\text{Where } K = \frac{1}{N} \sum_{i=1}^{N} \frac{1}{Ni}$$

$$S = \sum_{i=1}^{N} \sum_{j=1}^{Ni} (X_{ij} - X_{i.})^2$$

$$d.f. = \sum_{i=1}^{N} (N_i - 1)$$

	KINDS OF PROJECTS				
	DAIRY	ELECTRIC	GARDEN	SHEEP	WOODWORKING
N equals					
$\bar{X}$ equals					

ANALYSIS OF VARIANCE FOR

GRADE ____________

SEX ____________

VARIABLE ____________

Source of Variation	Sum of Squares	d.f.	Mean Square	F	F Required at .05
Between Groups					
Error					

H_1 Girls

	KINDS OF 4-H PROJECTS		
	CLOTHING	FOOD	LIVESTOCK
N equals			
$\bar{X}$ equals			

ANALYSIS OF VARIANCE FOR

GRADE

SEX

VARIABLE

Source of Variation	Sum of Squares	d.f.	Mean Square	F	F Required at .05
Between Groups					
Error					

H_2

	NUMBERS of 4-H PROJECTS						
	1	2	3	4,5,6	7,8,9	10,11,12	over 12
N equals							
$\bar{X}$ equals							

ANALYSIS OF VARIANCE FOR

GRADE ______

SEX ______

VARIABLE ______

Source of Variation	Sum of Squares	d.f.	Mean Square	F	F Required at .05
Between Groups					
Error					

H_3

	LEVEL OF PROGRESSION OF 4-H PROJECTS			
	No Progress on But Potential Exists for Some	Some Progress But Less Than Half	More than Half But Less Than Total	Progression Each Year to Maximum
N equals				
$\bar{\bar{X}}$ equals				

ANALYSIS OF VARIANCE FOR

GRADE ____________

SEX ____________

VARIABLE ____

Source of Variation	Sum of Squares	d.f.	Mean Square	F	F Required at .05
Between Groups					
Error					

APPENDIX V

APPLICATION OF DUNCAN'S MULTIPLE RANGE TEST TO THE MEAN SCORES FOR METROPOLITAN ACHIEVEMENT TEST FOR BOYS AT GRADE I CATEGORIZED ACCORDING TO PROGRESSION (H_3)

Order	1	2	3	4
Category	Over Half	Some	None	Maximum
N	8	20	36	10
$\bar{X}$	116	$\underline{103.9}$	$\underline{99.8}$	77.0

$$\bar{X}_1 - \bar{X}_2 > \sqrt{1/2\ (1/8 + 1/20)\quad 72.05}\qquad (2.83)$$

$$12.1 > 7.0$$

Therefore is significant

$$\bar{X}_2 - \bar{X}_3 < \sqrt{1/2\ (1/20 + 1/36)\quad 72.05}\qquad (2.83)$$

$$4.1 < 4.5$$

Therefore is not significant

$$\bar{X}_2 - \bar{X}_4 > \sqrt{1/2\ (1/20 + 1/10)\quad 72.05}\qquad (2.83)$$

$$26.9 > 21.9$$

Therefore is significant

$$\bar{X}_3 - \bar{X}_4 > \sqrt{1/2\ (1/36 + 1/10)\quad 72.05}\qquad (2.83)$$

$$22.8 > 6.0$$

Therefore is significant

There is a significant difference between those members with over half progression and all others - the group. There is no significant difference between those members showing some progression and those showing none. There is a significant difference between those members showing maximum progression and those showing some or none.